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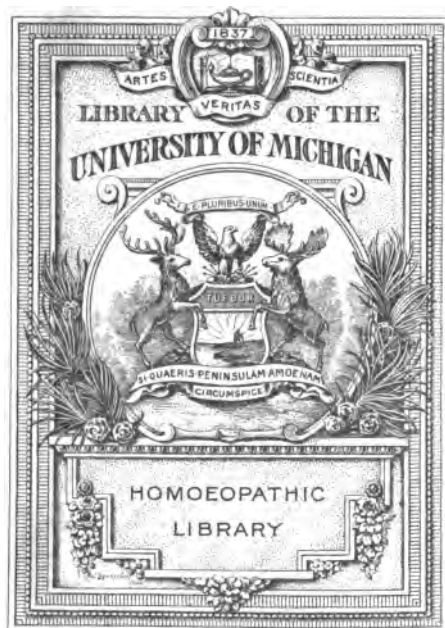
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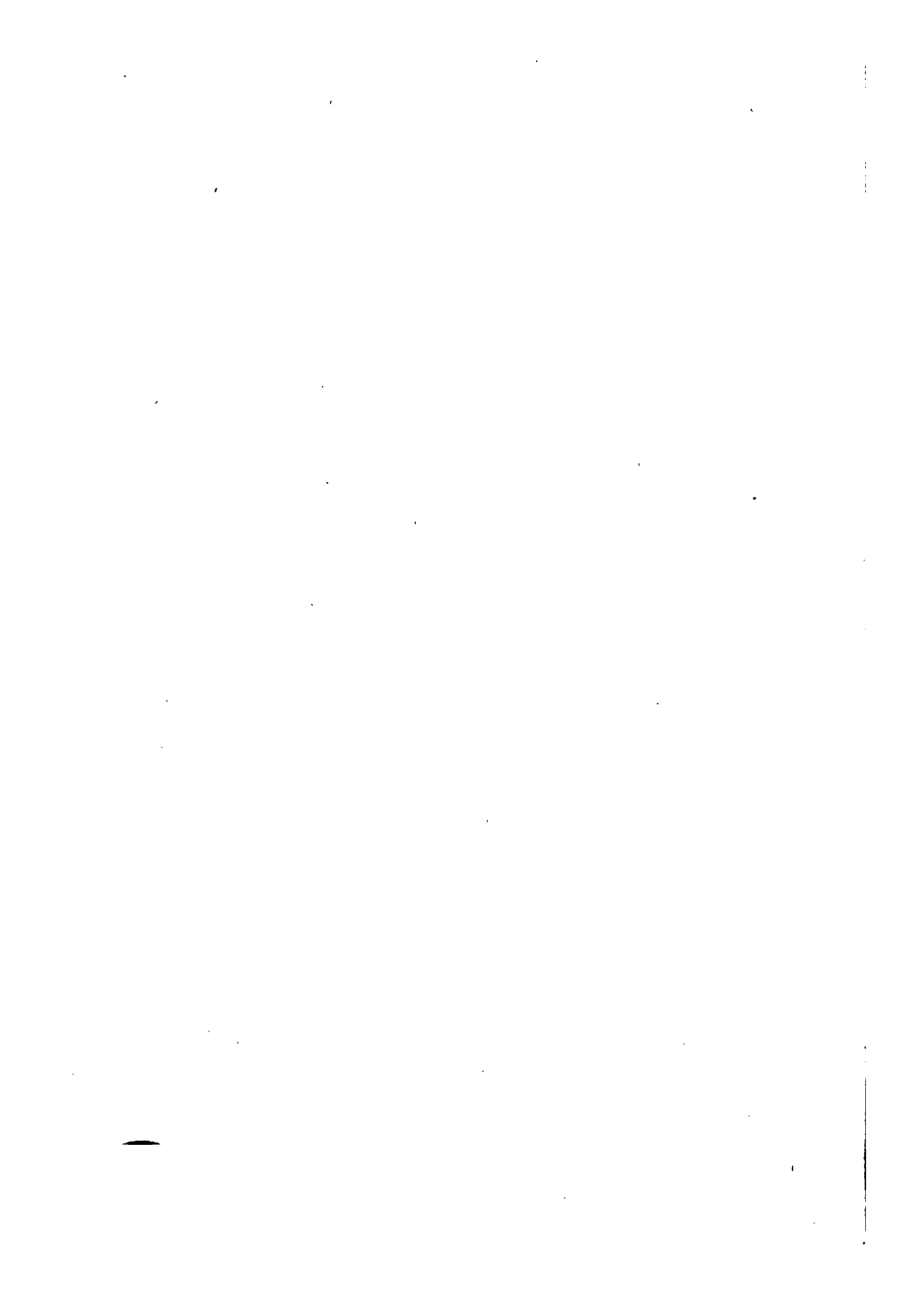
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Diseases of the Kidneys

AND

Nervous System

BY

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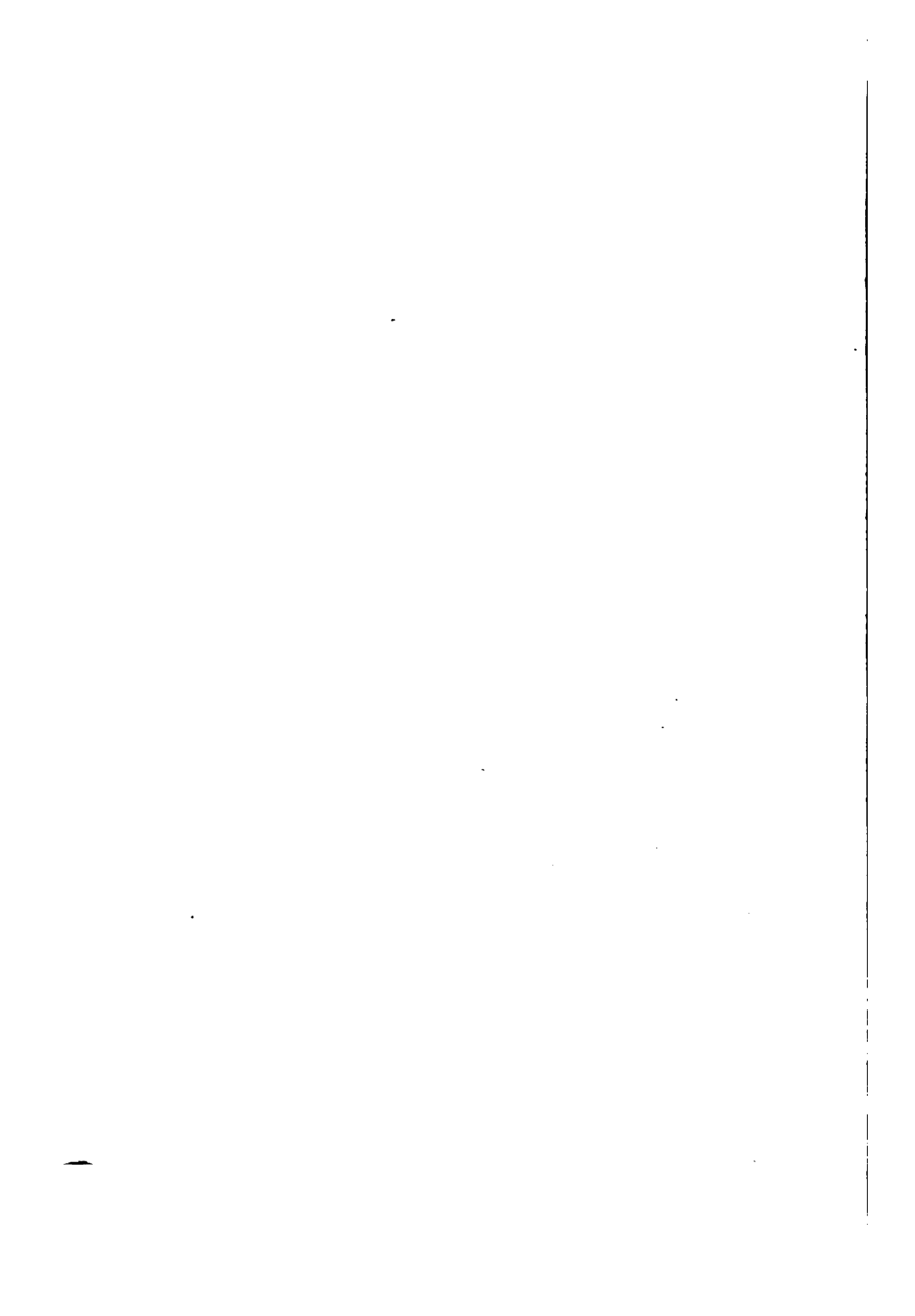
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PREFACE.

IN presenting this, the sixth and closing part of his work on "Internal Medicine," the author does so realizing that although the field is already crowded with treatises upon this subject, yet the reception accorded the former numbers of this series has assured him that they have met a need. They have been prepared for the student and general practitioner, and not for the specialist. At this time the author desires to acknowledge the many expressions of appreciation of the value of this series that have been accorded it. The author has endeavored to present the facts as he has observed them in his clinics, hospital and private practice, and as a result of this observation, the unproven have been omitted, and the verified and practical have been incorporated. For this reason the discussion of theories has been omitted, and for such the reader is referred to a cyclopedia treating of the subject. Special attention has been devoted to the subject of diagnosis, differential diagnosis, hygienic and dietetic treatment, as well as the selection of the indicated remedy.

ALEXANDER L. BLACKWOOD, B. S., M. D.
Chicago, October 1, 1913.



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Diseases of the Kidneys and Nervous Diseases

THE KIDNEYS.

The kidneys are situated posteriorly in the abdomen, one on each side of the spinal column behind the peritoneum, and extend from the level of the eleventh rib to near the crest of the ilium. The right one is lower than the left. The ureters are the excretory ducts of the kidneys, and descend obliquely inwards along the posterior wall of the abdomen, and enter the bladder at the posterior angle of the trigonum vesicæ.

Symptoms of renal disease are often vague and indefinite. There may be pain referred to the lumbar region, or pain and difficulty when urinating. In cases of deficient elimination other symptoms may appear, as vertigo, headache, coma and convulsions. In still another class the appearance of the urine is changed. It may be pale, scanty or profuse, or it may be high-colored, smoky or bloody.

The family and clinical history of the individual should be carefully investigated. The presence of constitutional infection, as syphilis, gout, rheumatism, or the presence of headache, drowsiness, vomiting, diar-

rhœa, dyspnœa, convulsions or paralysis should be carefully investigated.

The kidney should be examined physically. Palpation should be employed to ascertain if it is in its normal position. The presence of a "floating kidney," pyelitis, hydronephrosis, neoplasms and abscesses of the kidney may each be palpable.

The function of the kidney is the secretion of urine. The amount of urine secreted by a healthy adult in twenty-four hours varies from 1500 to 2000 c.c. (40 to 50 ounces). This will depend upon the amount of water ingested, the perspiration, the presence of disease, such as diarrhœa, vomiting, acute fevers, and certain forms of chronic nephritis. It is increased in certain forms of chronic nephritis, and various constitutional and nervous diseases.

Polyuria is a term employed to indicate an increase, oliguria a decrease in the quantity of urine excreted in a given time.

Specific Gravity.—The specific gravity of the urine varies normally from 1.015 to 1.025, and is taken by means of a urinometer. It is low in diabetes insipidus, chronic interstitial nephritis, and when the amount of urine excreted is large. It is high when the urine is concentrated; in diabetes mellitus and in cases of renal and cardiac dropsy, when the amount of urine is small. The amount of solids in a twenty-four hour sample of urine varies from 60 to 90 grams.

Odor.—The odor is typical, aromatic, when it has fermented it becomes ammoniacal. In diabetes mel-

litus there is a sweetish odor. If acetone is present there is an odor similar to chloroform.

Color.—Normal urine is a pale yellow, amber or straw color. If concentrated it is of a darker color. If it contains blood it is red or smoky, if biliary coloring matter is present it is brown, and there is a yellow foam, and if there is carbolic acid or creasota present it is black.

In a normal condition urine is clear. Cloudiness is abnormal, and its significance varies according to the reaction of the urine. Such a condition in acid urine may be the result of urates, which disappear on heating the urine. There may be other elements which require the microscope to distinguish. Cloudiness of alkaline urine may be due to phosphates or calcium oxalates. The former will disappear upon the addition of a few drops of acid. If it remains it should be studied by the aid of the microscope. A milky cloudiness may be the result of chyle, pus or excessive excretion of phosphates.

Reaction.—Urine is normally mildly acid when it reddens blue litmus paper, the intensity of the redness depending upon the degree of acidity. If it is alkaline it turns red litmus paper blue. Should the red color return when the paper is dried, the alkalinity is volatile, and there is probably an inflammatory condition of the lower urinary tract. If the blueness persists, the alkali is fixed and is dependent upon an increased alkalinity of the blood, the result of dyspepsia, fasting, vegetable diet, or the drinking of alkaline waters.

Albumin.—This is present in the urine as a result of nephritis, disease of the blood and deranged blood pressure. The urine, to be examined for albumin, should have been recently voided. A simple test for albumin is to boil the urine in a test tube, and if cloudiness develops as a result and this is not cleared up by adding a few drops of acetic or nitric acid, it is albumin.

Heller's test consists in holding a test tube with nitric acid in it in nearly a horizontal position, and allowing some of the urine to trickle down the tube and superpose on the acid. If albumin is present, a light zone will appear at the junction of the acid and the urine. In some cases it may require a few minutes for the zone to appear.

Picric acid.—Picric acid test for albumin is made by floating a small quantity of saturated watery solution of picric acid upon some urine in a test tube. If there is no opacity at the point of contact there is no albumin.

Sugar.—This appears in the urine in cases of diabetes mellitus, excessive ingestion of sugar or glucose, and as a result of cerebral and bulbar disease.

Haines' test consists in boiling one drachm of the solution in a test tube, and the adding of six or eight drops of urine and again boiling.

A dense yellowish-red precipitate indicates sugar. The solution is prepared by taking 30 grains of pure copper sulphate and $\frac{1}{2}$ ounce of distilled water, and making a perfect solution. Add pure glycerine $\frac{1}{2}$ ounce, mix, and add 5 ounces of liquor potassæ.

Fehling's solution gives a similar reaction.

Diacetic acid.—This develops in the urine in advanced cases of diabetes mellitus, and its appearance indicates a possible development of coma at any time. To some freshly voided urine add a few drops of ferric chloride solution. If phosphates are precipitated, filter them off and add a few drops more of the ferric chloride solution. A dark red color which disappears on boiling will indicate the probable presence of diacetic acid.

Bile.—This gives a dark color with yellow foam to the urine. If a few drops of this urine and strong nitric acid flow together on a white plate there will be a play of color at the point of contact, green, violet, blue, red and yellow.

Blood in the urine is best recognized by the use of the microscope.

Urea.—This is the most important physiological organic element in the urine. The amount excreted in twenty-four hours varies from 300 to 600 grains (20 to 40 grams) for a person of average weight (150 pounds). If it is constantly below this amount, nephritis should be suspected.

The amount is conveniently estimated by means of the Doremus ureometer. One c.c. of c. p. bromine is added to a saturated solution of caustic soda, which has been placed in the long arm of the Doremus ureometer and thoroughly mixed. The bulb and the long arm of the ureometer being thus filled with the fluid, one c.c. of urine is slowly introduced in such manner

with a dropper, that the nitrogen gas will collect at the closed end of the graduated long arm. The amount can be read off and indicates the fraction of a gramme of urea contained in one c.c. of urine. With this as a basis the total for twenty-four hours can be estimated.

Indican.—This is a normal constituent of urine. It is increased in cases of decomposition in the intestinal tract. The amount in a sample of urine is estimated by adding a few drops of hydrochloric acid to three or four c.c. of urine in a test tube and gently heating it. If it is normal, there is a yellow color, if it is increased the color is blue or violet.

Chlorides.—Add to the urine a few drops of nitric acid and 2 or 3 drops of a solution of silver nitrate. A curdy white precipitate indicates normal or high according to the density. Cloudiness indicates low. The amount of sodium chloride excreted in the urine in twenty-four hours is about half an ounce. It is diminished in those febrile conditions in which exudation takes place, as in pneumonia.

Sulphates.—Add to the urine a few drops of hydrochloric acid, and $\frac{3}{4}$ the volume of urine, of barium chloride; an opaque milky cloudiness equals normal.

Phosphates.—For the earthy phosphates, place 2 inches of urine in a test tube, add a few drops of sodium chloride, boil and allow precipitate to settle. One-half inch of precipitate equals normal.

Alkaline phosphates.—Add ammonia to the urine, warm and filter, add to the filtrate one-third its quan-

tity of magnesia mixture. Semi-opaque fluid indicates normal. If dense and creamy the amount is too great.

Mucin.—Float urine over acetic acid. A white ring at point of contact indicates the presence of mucin.

The microscope is of service in determining the composition of a sediment following the use of the centrifuge. Calcium oxalates, uric acid, blood corpuscles, pus, epithelium and casts are the leading ingredients to be studied. For an exhaustive study, both the qualitative and quantitative analysis of the urine as well as the use of the microscope in the same, the reader is referred to a treatise dealing with the topics.

ACTIVE CONGESTION OF THE KIDNEY.

Synonyms.—Hyperæmia; active hyperæmia.

Etiology.—This may be the first stage of an inflammation of the kidney. It may be compensatory due to the removal of one of the kidneys, or it may result from certain poisons (cantharis, turpentine) and from infectious diseases, or exposure to cold and dampness.

Pathology.—The kidney is enlarged, of a dark red color and blood drips from a cut surface.

Symptoms.—These depend upon the degree of congestion present. In mild cases the color of the urine is darker and the specific gravity is higher than is normal. There may be a sensation of weight and dull pain in the renal region.

Prognosis.—This depends upon the cause and its amenability to treatment.

Treatment.—This consists in the management of the original disease as well as that of the kidney. The patient should avoid exposure, fatigue, and a diet that will irritate the kidney. The diet should consist of milk, cereal, etc.

The remedies indicated are those that meet the primary cause as well as the condition of the kidney; *aconite* if the patient is restless, thirsty and there is anxiety and fever; the attack may be dependent upon exposure to cold. *Veratrum viride* should be compared. *Cantharis* should be remembered when there is constant desire to urinate, the urine is scant, may con-

tain blood and its passage is attended with a sensation of burning. There is a sensation of heat in the renal region. *Terebinth* should be compared with it. *Berberis vulgaris* is indicated when the pains, which are throbbing and lancinating in character, extend from the kidney along the ureter to the bladder. The urine is scanty and turbid.

PASSIVE CONGESTION OF THE KIDNEY.

Symptoms.—Passive hyperæmia; cyanotic induration.

Etiology.—This is often dependent upon a valvular disease of the heart or pressure upon the vena cava that results in the blood being held back in the larger veins and kidneys.

Pathology.—The kidney is larger than is normal, is of a reddish-blue color. The organ is indurated and dark colored and blood drops from a cut surface; the veins are dilated and the fibrous connective tissue is increased.

Symptoms.—The quantity of urine is diminished, and it is darker in color than is normal. The specific gravity is increased and urine is strongly acid in reaction. The urates are increased in proportion to the amount of the urine. There is an excess of urobilin, and albumin soon appears in the urine as well as hyaline tube casts and leukocytes. There is usually dyspnœa, cyanosis, gastro-intestinal catarrh, enlarged liver, hemorrhoids and anasarca.

Prognosis.—This depends upon the cause and whether it is amenable to treatment.

Treatment.—The patient should be kept in bed. The diet should consist of milk. Means should be adopted that will increase the muscular power of the heart.

A remedy must be selected that meets the totality of the symptoms. Of these *digitalis*, *strophanthus*, *spartein*, *adonis vernalis*, and *cratægus* are important.

CHRONIC NEPHRITIS.

This presents itself either in the form of chronic parenchymatous nephritis, which is a diffuse process, or the chronic interstitial nephritis, which is characterized by a hyperplasia of the connective tissue. In some cases there is a combination of the two.

CHRONIC PARENCHYMATOUS NEPHRITIS.

Synonyms.—Chronic diffused nephritis; Chronic croupous nephritis and Chronic Bright's disease.

Definition.—This is an inflammation affecting all the tissues of the renal cortex but not tending to supuration.

Etiology.—The most frequent cause is acute attacks which have become chronic by continuation or repetition. It occurs from exposure to damp cold, malaria, scarlatina, pregnancy, syphilis, alcoholism, auto-intoxication and various infectious diseases. In some cases it is difficult to state the cause. Irritant poisons as cantharis, turpentine and phosphorus are etiological factors.

Pathology.—Primarily the kidney is enlarged as a result of an inflammation of the tubular epithelium. The epithelium is swollen and degenerated. The lumen of the tubules is closed with debris. The arteries are compressed as a result of the formation of bands of connective tissue. The cortex of the kidney is thickened, anemic and the pyramids are darker than normal. The capsule strips easily and the substance of the organ is moderately firm, but may be soft. To this condition the term large white kidney is often applied.

In some cases the substance of the organ may be of red color or mottled light areas of yellowish or gray color may alternate with the normal. In these cases punctate or lineal extravasation of blood may be ob-

served and the term chronic hemorrhagic nephritis is applied. The kidney is enlarged, the cortex thick and the capsule easily removed. As the case progresses the epithelium shows degeneration and the organ becomes lighter in color and more fatty in appearance. At the same time the interstitial process becomes more apparent; the substance of the organ becomes firmer and the kidney reduced in size. The capsule becomes adherent. The tubes are choked and the constriction, due to the increase of connective tissue, occasions minute retention cysts.

Symptoms.—These are often indefinite. The patient often gives an indefinite history of ill health extending over months or years, and it is not till an examination of the urine is made that the true condition is ascertained. The first symptom is often a puffiness of the face and later of the ankles. Headache, visual disturbances, drowsiness, nausea, vomiting and intestinal indigestion are complained of. Dyspepsia and increased edema are observed. The heart shows increased action, and the left ventricle gradually enlarges and becomes hypertrophied. The urine is scanty, cloudy, with urates, contains albumin and hyaline, epithelial, granular and fatty casts. The urea and phosphates are decreased.

After some years the enlarged and hypertrophied heart undergoes fatty degeneration and dilatation. Weakness, dropsy and dyspnoea increase, while the quantity of urine is much diminished.

Diagnosis.—This is made from the symptoms as out-

lined, the urinary symptoms especially being pathognomonic.

Prognosis.—If the condition is recognized early, a cure may be effected. If the disease is well advanced before being recognized, the chances of recovery are small. In some cases the disease may remain stationary for years, but the majority of cases die within five years after its recognition.

Favorable symptoms are the normal heart action and normal amount of solids excreted by the kidneys. Unfavorable symptoms are the continued low specific gravity of the urine, especially small amount of urea, the rapid pulse rate and the increasing dropsy. Death results from uremia, edema of the lungs, pneumonia, pleurisy or pericarditis.

Treatment.—The chapter on the management of uremia should be consulted and the directions given there be carried out in connection with this disease. Over-eating, constipation of the bowels, exposure to damp and cold should be avoided, as well as mental and physical fatigue. Constipation should be corrected by means of a diet and exercise. If a laxative is demanded sodium sulphate should be employed in preference to any of the vegetable laxatives. The sodium phosphate should never be employed in this disease.

Full warm baths (95° F.) for thirty minutes each day, followed by a thorough friction, are of service. Cold water and sea bathing should be avoided. Daily inhalation of oxygen is serviceable in reducing the quantity of albumin.

The diet should be such as to maintain the patient's nutrition as thoroughly as is possible. If the symptoms are aggravated the diet should consist merely of milk or milk diluted with seltzer water. Onions, tomatoes and rhubarb should not be allowed, as they favor oxaluria, as do asparagus, strawberries and mustard or salads in which these articles enter, as they also irritate the kidneys.

Nephritic patients should be protected from mercury, salicylic acid and sodium phosphate, as they are excreted by the damaged kidneys.

If dropsy should become severe, incisions should be made through the skin and fascia above the external maleoli to allow the fluid to escape.

During the activity of the disease the patient should remain in bed. For those who can afford, it is preferable to live in an equable climate. If this is impossible, patients should care for themselves, taking considerable rest. Women should remain in bed during the menstrual period.

Drinking of too much fluid will raise the arterial tension. Water should be taken slowly that a sudden strain may not be thrown upon the circulation.

A salt free diet has been advised. The normal salt requirement is 15 to 30 grains per day; the majority of patients consume much beyond this. In a salt free diet foods are chosen which contain a minimum of inorganic salts, and no table salt at all is added as a condiment in cooking or eating. In detail this diet consists of milk, eggs, butter, chicken, bread made with-

out salt, cereals cooked without salt, fruits, jellies, tea and coffee. It is doubtful if all that is claimed for this method of treatment is realized, but it is worthy of a trial.

Apocynum cannabinum should be studied in these cases in which dropsy is pronounced. This will be found especially serviceable for those who have been heavy beer drinkers. The urine is dark and scanty, there is general anasarca and the skin is distended and glistening. The heart's action is slow and the bowels are constipated.

Cantharis.—When this remedy is indicated there is an intense hyperemia, as is observed in the region of the large white kidney. The urine is highly albuminous, micturition is frequent, and there is general dropsy.

Mercurius corrosivus.—This remedy should be studied following *cantharis*. When dropsy has been reduced the urine remains highly albuminous and scanty. The patient may be anemic. He may have gastro-intestinal disturbance, bladder irritation and a history of syphilis. It is frequently of service when the nephritis has developed during pregnancy.

Arsenicum album.—This remedy should be studied when the patient is anemic and there is irritation of the gastro-intestinal tract. The patient complains of extreme weakness and prostration; especially is this noticed following the least exertion. There is restlessness, anguish, thirst and dyspnea.

Iodide of potassium should be remembered in those

cases in which there is a history of constitutional syphilis. It should be compared with *iodine* in this particular.

Chlorate of potash should be studied in rapidly advancing cases in which there is palpitation of the heart; the patient is pale and breathless and the urine is scanty and highly albuminous.

Phosphorus should be studied in those cases in which there are fatty casts in the urine and evidence of fatty degeneration of the kidneys.

The remedies considered under uremia and chronic intestinal nephritis should be studied in this connection.

CHRONIC INTERSTITIAL NEPHRITIS.

Synonyms.—Contracted, Gouty, Red Granular Kidney and Cirrhosis of the Kidney.

Definition.—This is a process of fibrosis usually associated with diffused arterio-sclerosis and a parenchymatous degeneration that results in a contraction of the size of the kidney.

Etiology.—It may be the result of irritants conveyed through the blood. It may follow syphilis, gout, arterio-sclerosis, chronic plumbism, uric acid, prolonged passive congestion, heart lesions, infectious diseases, scarlatina, malaria and rheumatism.

It is a constant feature in old age, and may occur during middle life. It is associated with the sclerosis of other organs.

Pathology.—This is a hyperplasia of the connective tissue of the organ that results in compression of the tubules. This results in a decrease in the size of the kidney which may be very much contracted. It is red and granular, with atrophy of the cortex and an adherent capsule. The microscope shows bands of intertubular connective tissue. As this contracts, the tubules are in part obliterated, while other portions are dilated. A general arterio-sclerosis and hypertrophy of the heart are constantly associated.

Symptoms.—While a disease of middle and advanced life, it may be met with during childhood. Its advent is insidious, but should be looked for in those

who are hearty eaters and have a high arterial tension. Digestive disturbances and high arterial tension are about the first symptoms to be noted. With these there gradually develops hypertrophy of the left ventricle with an accentuation of the second aortic sound. About this period a slight edema appears about the ankles and under the eyes. Uremia is soon indicated either by headache, drowsiness, vertigo or coma. A dimness of vision is complained of and an ophthalmoscope is apt to show an albuminuric retinitis. The amount of urine excreted in twenty-four hours is increased. The specific gravity is low, 1.005 to 1.015. There may be a small amount of albumin in the urine and hyaline casts are usually found. The patient usually rises at night to urinate. As the case advances, dilatation of the heart with dropsy, dyspnoea and reduplication of the first sound of the heart develop: and as the tension increases cerebral hemorrhage is not uncommon.

Diagnosis.—This is based on the clinical symptoms as outlined. An examination of the urine usually leads to a recognition of the disease. It should be differentiated from passive renal hyperemia and chronic parenchymatous nephritis.

Prognosis.—This is bad, as it is impossible to repair actually destroyed tissue; if there is sufficient kidney tissue in good condition to carry on the work of the organs, life may be prolonged. If there is a persistent lowered urea elimination the outlook is not good.

Treatment.—Persons who have been infected with

syphilis, or any disease that may result in arteriosclerosis, should have early and thorough treatment, as well as those subject to gout and diseases of metabolism.

If possible, the patient should reside in a mild, equable climate and spend much time in the forest air, following an out-door life. If it is impossible, he should avoid exposure to extremes of temperature, to dampness and avoid getting the feet wet. The chilling of the surface of the body should be avoided. Linen mesh or wool garments should be worn next to the skin.

All business cares and worries should be avoided and the life be quiet both mentally and physically.

The diet should be varied and the proteids reduced. There has been a tendency to cut all proteids and confine the patient to a milk diet exclusively. This has proven inadequate in iron, for the demands of the system. During the early stages when there is albumin in the urine, but no other symptoms, proteids should be allowed, meat in moderation once or twice a week, or if anemia is developing, it may be allowed once a day. If uremic symptoms develop with high arterial tension, headache and gastric disturbances, ham, tongue, chicken, fish and eggs, which contain much proteids, should be allowed in moderation, as these are not likely to be eaten to excess as are beefsteak, roast-beef or mutton.

A milk diet may be employed with advantage in certain cases of advanced Bright's disease, and the

feeding of the patient upon an exclusive milk diet is remarkably efficacious. The quantity of urea and the urine increase, while the anasarca, and albumin in the urine, diminish on the milk diet. The patient's strength is increased; the pulse becomes stronger and the dyspnoea, if present, usually subsides.

The quantity of milk for an average individual is from five to seven pints daily. The milk is deficient in carbohydrates, so rice, bread, or crackers may be incorporated to make it a more perfect diet. In reducing the diet it is not advisable to cut out all solid food at once, but one article and then another should be cut out and more milk, or bread and milk, introduced. The milk should be taken frequently at first. After taking the milk, the mouth and throat should be thoroughly cleansed to remove the coating that occurs over the tongue.

Constipation usually follows the introduction of a milk diet. To overcome this enemata, the use of stewed prunes, one or two baked apples or the juice of an orange or two will be found to be of service.

In severe cases, the milk diet should be continued five or six weeks when a variation in the way of cereals, fruits or fresh vegetables may be introduced.

Some patients will object to the milk and state it makes them bilious. This can usually be corrected by the introduction of charged waters. An excess of water may be injurious to the heart.

Aconitum napellus will be found of service in relieving the cerebral congestion and vertigo that attend

some of these cases. The patient is restless, the pulse quick, the skin dry and hot, or it may be cold. The urine is scanty and may be suppressed.

Mercurius solubilis or *corrosivus* should be remembered in those cases in which there is a history of syphilitic infection. The *corrosivus* is indicated during the later stages of the disease, especially when the eyes are showing an involvement of the retina, also during an acute condition. The face presents an earthy pallor. The mouth and gums are sore and the breath is fetid. The symptoms are worse during the night and during perspiration. The urine contains albumin and casts.

Plumbum carbonicum should be studied when, with the general symptoms, there is a marked decrease of the urea, urates and phosphates. Constipation is a prominent symptom. The patient is extremely melancholy and suffers from loss of vision. *Plumbum iodide* should be compared with it.

Arsenicum album should be studied when there are respiratory difficulties, dyspnoea which is worse after midnight and on lying down and there is relief from sitting up. The patient is emaciated. There is a general dropsy or pulmonary edema and pericarditis. The patient is restless, anxious and fears death. There are nausea and attempts to vomit. In some cases where this remedy does not afford the desired relief, although apparently indicated, the iodide of arsenic should be studied.

Kali-hydriodicum should be studied in syphilitic

cases, although its usefulness is not confined to this class alone. In some cases iodide of sodium will be of service, the increased arterial tension and defective renal elimination requiring it. There is a gradual emaciation and cirrhosis and a general capsulitis is present.

Aurum muriaticum should be studied during the early stages and if indicated, the patient should be kept under its influence for some time. It should be given in the lower potencies.

Glonoinum is of service in those cases in which the arterial tension is high. The amount given should be sufficient to reduce the tension and yet not enough to develop the peculiar physiological effects that are so distressing to some patients.

The *nitrates of sodium* and *potassium* should be studied in this condition. One or two grains of sodium given every three hours is frequently of much service and its effects are of greater duration than glonoine.

Euonymin should be carefully compared as well as *veratrum viride*, *digitalis*, and *strophanthus* when the cardiac symptoms are distressing the patient, either from the hypertrophy of the early stages or dilatation of the later stages. Those remedies that have been mentioned for the high arterial tension should be compared together with *cactus*, *convallaria*, *spartein*, and *adonis vernalis*.

When edema is present *apis mellifica*, *apocynum*, *bitartrate of potassium* and *magnesia sulphate* should be added to the list of remedies.

POST SCARLATINAL NEPHRITIS.

A similar condition is met with following other infectious diseases. It is met with most commonly in childhood. Exposure to draughts, cold or wet during or after scarlet fever, induces the disease.

Symptoms.—There is headache, restlessness, delirium, coma and anuria. The danger of the excretory power of the kidney being injured lies in the nitrogenous substances being retained in the system.

Treatment.—This is similar to the management of acute nephritis.

Aconitum napellus should be studied in cases which are the result of cold, in which edema develops rapidly. There is anasarca with high fever and restlessness and soreness in the lumbar region. The arterial tension is increased. There is pain in the renal region with a desire to urinate accompanied by a stinging and burning pain in the region of the kidney.

Cuprum arsenate should be studied in cases in which there are pronounced symptoms of uremia.

Apis mellifica should be remembered when the dropsical condition develops rapidly. There is no thirst, but there is swelling of the genitals and backache. The parts are of a waxy hue.

Apocynum cannabinum should be studied when the urine is dark colored and there is thirst, but water nauseates. The pulse is irregular, intermittent and feeble.

Cantharis should be studied in those cases in which there is intense congestion affecting the glomeruli of the kidney, with pain and rapid inflammation.

SUPPURATIVE NEPHRITIS.

Synonyms.—Purulent nephritis; Abscess of the Kidney and Acute Interstitial Nephritis.

Etiology.—This is dependent upon the entrance into the kidney of the pyogenic micro-organism, which may reach the kidney as a result of trauma, by the perirenal tissue or by passing upwards through the prostate, bladder and ureter or by the blood current, as in pyemia.

Pathology.—In advanced cases there may be little or none of the tissue of the kidney left and the capsule be only a sac filled with pus. In slightly advanced cases, there may be but small foci of suppuration which show a tendency to coalesce and thus give rise to a much larger accumulation of pus than was at first indicated. If the process is of long duration, thickening of the fibrous tissue is frequently noted around the abscess.

Symptoms.—The disease is similar to others in which the suppurative process is present. There is fever which may alternate with chills and may be of a remittent type, and there may be profuse and debilitating sweats. The patient becomes pallid, complains of thirst and loss of appetite. Diarrhœa may be present.

There is pain in the region of the kidney, increased by pressure. By palpation, the kidney is found to be enlarged and fluctuation may be present; but the

foci must have attained considerable size before they can be detected. The urine contains pus as soon as there has been a rupture into the urinary passage. Tube casts and albumin are present in the urine only when there has been a diffuse inflammation of the kidney. The urine is often alkaline in reaction. The patient complains of vesical tenesmus and severe pain upon evacuation of the bladder. The blood shows a leucocytosis.

Diagnosis.—This is often difficult, as the small pus foci may be encapsulated and evidences of the changes in the kidney may be absent. Should pyuria be present, the possibility of tuberculosis of the kidney as well as suppuration of the urinary passage should be considered.

Suppurative nephritis may be acute, subacute or chronic and may be of months' duration.

Complications.—Chief of these is renal colic, the result of stasis of the ureter, which leads to sudden severe pain in the loins with chills, elevation of temperature and vomiting. The urine is diminished in quantity; it being excreted from the healthy kidney only, it may be quite clear. Should the obstruction of the kidney not be removed, there may be danger of uremia and urinary septicemia. Rupture of pus into the surrounding tissue or into the abdominal cavity usually results in a fatal peritonitis. Rupture may take place into the stomach, intestines or pleural cavity. The pus may rupture externally. Long continued suppuration of the kidney gives rise to amyloid

degeneration and progressive exhaustion; urinary septicæmia usually results.

Prognosis.—The prognosis is serious. Early recognition of the condition and introduction of surgical measures may render the prognosis better.

Treatment.—This consists in the adoption of surgical procedure, the drainage or removal of the kidney, and means which will maintain the strength of the patient, as a concentrated nutritious liquid diet; liquid peptonoids, milk, buttermilk, oysters and oyster broths are the best articles of diet.

During the early stages *aconite* or *veratrum viride* should be studied if the fever is high. *Arnica* should be considered if there is a history of traumatism. Following the drainage, *silicea*, *hepar sulphur*, *calcarea*, *sulphur*, and *echinacea* should be compared. *Boric acid*, *eucalyptus* and the *benzoates* should also be thought of.

ALBUMINURIA.

While there are cases in which albumin has appeared in the urine during a lifetime without any pronounced or injurious effects, yet its presence is looked upon as a morbid manifestation.

There are apparently healthy people in whose urine albumin appears after walking a long distance, over-exertion of any kind, cold baths or ingestion of eggs. This has been termed physiologic albuminuria. Cyclic albuminuria is a similar condition in which the albumin may occur only during the day. In some cases the urine may be excreted perfectly free from albumin, but it becomes albuminous from renal albuminuria, which is dependent upon a diseased condition of the epithelial cells of the blood vessels in the malpighian bodies of the kidneys, whose function it is to prevent the albumin of the blood from passing through into the urine. The epithelial cells of the convoluted uriniferous tubules have a similar function and may be similarly affected.

The albuminuria may be the result of primary disease of the kidney or it may be due to alterations in the blood, giving a nephrogenous or a hematogenous albuminuria.

For the demonstration of albuminuria the boiling nitric-acid test, or the nitric-acid test of Heller will be all that is required. In the first, the boiling nitric-acid test, the urine is introduced into the test tube and

boiled. If the urine is acid and it remains clear on boiling no albumin is present. If, however, a turbidity ensues, this may depend upon earthy phosphates which have been precipitated on heating the urine, or upon a coagulated albumin. If upon the introduction of an excess of nitric-acid the turbidity disappears, it is due to the presence of earthy phosphates.

Heller's nitric-acid test is made by placing several cubic centimeters of nitric-acid into a test tube. Upon this the urine is permitted to flow down the side of the test tube and form a layer over the acid, a white ring at the junction of the acid and the urine indicates the presence of albumin. A second ring composed of urates may appear at lower level. If urates, this will disappear upon the application of heat. A brown ring may appear if the urine contains much indican. This is transparent and of a brown color.

The clinical causes of hematogenous albuminuria are circulatory disorders, anemia and venous hyperemia. The nephrogenous albuminuria is observed with diffuse inflammatory conditions of the kidney. Febrile infections and toxic conditions are causes of the nephrogenous form. The febrile condition is not as injurious as the toxemia. These forms irritate the renal epithelium. They may be from the infectious diseases or a mineral acid, carbolic acid, mercuric chloride or phosphoric acid. Albuminuria may appear following burns of the skin and a chronic cutaneous eruption, when it is induced by the absorption of toxic substances. Nervous albuminuria may appear as a

sequence of epileptic attacks, cerebral hemorrhages, hysteria, blues and the progressive paralysis of the insane.

Prognosis.—This depends upon the causative factor; when this is incurable, the albuminuria will be also.

Treatment.—This is prophylactic to a very great extent and such diseases as lead to albuminuria should be treated carefully. The development of such a condition should be watched for and receive appropriate treatment in its incipiency.

All food, drink and any condition that will in any way lead to an irritation of the kidney should be avoided. A milk diet is especially beneficial. It should be added to, that the patient may not become anemic. Vegetables and light pastry may be used.

Mild alkaline or acid waters may be used if thirst is present.

Flannels should be worn next to the skin, and exposure to the cold and sudden changes of temperature should be avoided. A residence in a mild, equable climate is of service to those who can afford it.

Exercise should be taken in moderation, as overdoing leads to a return of the albuminuria.

TUBERCULOSIS OF THE KIDNEY.

Etiology.—When primary it is usually unilateral; when secondary usually bilateral. It is more common in the male than in the female. The direct cause is the tubercle bacillus. The predisposing cause is an inherent or an acquired weakness of the kidney.

Pathology.—When the kidney involvement is a part of a general miliary tuberculosis, the surface of the organ is found studded with miliary tubercles. The mucous membrane of the pelvis of the kidney is the part usually involved first, the process extending from this into the kidney.

Symptoms.—The symptoms at first are indefinite. There soon appears an afternoon rise of temperature with increased pulse rate. Soreness referred to the diseased side gradually appears with pains which may be excruciating; the ureter and pelvis of the kidney become involved and urination becomes painful and more frequent. The urine sooner or later contains pus and blood and may be alkaline in reaction. The signs of pyelonephritis soon develop.

Diagnosis.—This is based upon the presence of tuberculosis in other portions of the body, the demonstration of the presence of the tubercle bacilli in the urine, the afternoon rise of temperature and the quickened pulse rate. In doubtful cases, the tuberculin reaction is conclusive.

Prognosis.—This is unfavorable.

Treatment.—This embraces many of the features in the management of general tuberculosis. During the early stages a change of climate may be of great service. The climate should be dry, equable and not too cold, as this chills the surface of the body and always aggravates the case. Very hot and dry climates reduce the quantity of the urine and increase the bladder irritability. Nephrotomy, if performed early, is of benefit if but one kidney is diseased. If urination is extremely painful, cystotomy or drainage is often of service.

If the case is of long standing and bilateral, with involvement of ureters and bladder, it is one which must depend upon medical treatment; also milk, eggs, cod-liver oil and all articles of diet that do not require too much of the kidney.

Such remedies as are of service in general tuberculosis are of service here. *Tuberculin* in infrequent doses is of great service in increasing the resistance.

Calcareo carbonica, *calcareo phosphorica* and *calcareo iodata* are useful.

Iodoform has been employed extensively in these cases, one grain triturated tablets being used.

Methylene blue should be studied in surgical kidney when the tubercle has been demonstrated in the urine.

AMYLOID KIDNEY.

Synonyms.—Lardaceous or Waxy Degeneration of the Kidney.

Definition.—This is a degeneration of the kidney, the result of chronic wasting discharge or cachectic conditions of the body.

Etiology.—It is observed in those suffering from a prolonged suppuration of the bones and joints, chronic diarrhoea, pulmonary tuberculosis, syphilis, malaria, cancer and chronic wasting diseases, or cachexia of any form.

Pathology.—The process begins in the small vessels and capillaries and the malpighian tufts; the blood vessels and tubules are gradually infiltrated and there is a hyaline degeneration. The kidneys are enlarged and smooth. The capsules are readily detached. In many cases a diffuse nephritis is associated. In the majority of cases other organs, particularly the spleen, liver and intestines, are associated in the amyloid degeneration.

Symptoms.—In the majority of cases the symptoms of the primary disease are prominent. While the quantity of urine excreted may be normal, it is of a pale yellow color and the specific gravity is lowered (1.010 to 1.015). In the majority of cases the urine contains albumin; hyaline and waxy casts may be present and the symptoms of chronic parenchymatous nephritis may be observed. There is usually marked

edema, heightened arterial tension and cardiac hypertrophy. The kidneys, spleen and liver are enlarged and present physical symptoms of amyloid degeneration. There may be present a peculiar waxy complexion and diarrhœa. Death results from progressive weakness and the excessive edema. There is a painless enlargement of the liver without ascites or jaundice.

Diagnosis.—This is based upon the presence of one of those conditions which results in amyloid degeneration, the appearance of the patient, the conditions of the urine and the symptoms as outlined.

AMYLOID DEGENERATION.

1. There is a history of chronic suppuration, syphilis or tuberculosis.
2. Similar changes are found in spleen, liver, etc.
3. Urine is clear with scanty sediment.
4. Seldom present.

NEPHRITIS.

1. Chronic diffuse nephritis without induration.
2. Other organs free.
3. The urine is apt to be turbid and contains sediment.
4. Uremia, dyspnoea, retinitis and cardiac hypertrophy develop.

Prognosis.—This is unfavorable if the causative condition is not controlled early.

Treatment.—This should be directed to the relief of the primary disease. The early control of a suppurative process, or whatever factor is operative in the case, is important.

All means should be employed that will in any way

increase the defensive properties of the tissues. Bathing and massage, that help the skin to functionate properly, should be encouraged. The diet should be nutritious and yet not interfere with the action of the kidneys.

If chronic suppuration is present the condition should be met with peroxide of hydrogen and the administration of such remedies as may be indicated. If chronic tuberculosis is the basis of the disease, all means that have any influence in such cases should be employed.

If syphilis is believed to be the basis of the condition, while it is not advisable to select the remedies empirically, such remedies as have the symptoms produced by this disease in their pathogenesis should be studied.

Potassium or *sodium*, *arsenicum* and the *iodides* should be studied. If the kidneys have undergone an interstitial degeneration *aurum mur.* and the various forms of mercury should be compared.

In those cases in which suppuration has been the causative factor, following the surgical treatment of suppurative foci, the indicated remedies should be administered, which may be *silicea*, *hepar sulphur*, *calcareae sulphurica*. If tuberculosis is the causative factor, *tuberculin*, *phosphorus*, *calcareae carbonica*, *calcareae phosphorica* should be studied.

NEPHROLITHIASIS.

Synonyms.—Renal calculus; Stone in the kidney.

Etiology.—This disease is more common in males than in females and in those of sedentary than of active habits. The excessive use of meat and alcohol and disorders of metabolism, as gout, favor development of the stones, as do urinary solids by precipitating cells, mucus or blood clots. The absence of salt in the food favors their formation. The stones may consist of uric acid, oxalate and carbonate of lime, phosphates and cystin.

Symptoms.—In some cases nephrolithiasis may not give rise to any symptoms. In other cases symptoms of pyelitis and pyelonephritis appear with pain radiating from the renal region that may be mistaken for intercostal neuralgia or lumbago. Nausea and vomiting may develop.

If the stone is free in the kidney it may then cause pain, especially if the patient undertakes violent exercise. In other cases there may be pain which is either constant or paroxysmal in character and is associated with tenderness over the skin, rigidity of the muscles of the parts and is made worse by motion. The pain may extend to the penis, testicle, inner side of the thigh, along the course of the ureters or genito-crural nerve.

Blood may appear either as clots or produce a smoky appearance in the urine.

In some cases there are symptoms of irritation of the bladder; then micturition is frequent and the urine contains pus. The digestive organs may be disturbed.

Renal colic is developed whenever the stone passes through the ureter. The pain develops suddenly, is agonizing in character and radiates down the ureter to the pelvis, prostate, scrotum or thigh. The pain is excruciating, causing the patient to writhe, a cold sweat appears upon the body and collapse may follow. Vomiting, constipation and frequent desire to urinate are common. After a period of minutes or hours the pain ceases as a result of the stone either having passed or returned into the pelvis of the kidney. Following the attack the urine contains pus or blood.

If the stone becomes impacted in the ureter, the colic persists and soon a distinct localized pain and tenderness, near the entrance to the bladder, may be recognized.

Diagnosis.—Stone in the kidney must be distinguished from renal tuberculosis.

In cases of colic the result of tuberculosis, the general symptoms of tuberculosis are present, such as quickened heart action and the evening rise of the fever. The blood in the urine with the absence of crystals and the possible demonstration of the tubercle bacillus in the urinary sediment should indicate tuberculosis.

Prognosis.—If the stone remains in the kidney, it is bound to injure the health, as pyelitis will be developed sooner or later, and if it is not passed, surgical interference is demanded.

Treatment.—The preventive treatment is important in these cases. The patient should lead a normal life; sedentary habits should be avoided and exercise, especially walking, should be encouraged. The patient should drink pure water till at least three pints of urine are excreted every twenty-four hours. The skin should receive proper care; a tepid soap bath followed by thorough friction should be employed each night before retiring. The following morning a cold sponge or tub bath should be taken and this followed by a thorough rub with a dry Turkish towel. The towel may be saturated with salt solution and then dried before being used. A general massage is beneficial in many of these cases.

All highly seasoned foods should be avoided by those subject to or suffering from calculi, as well as strong condiments; as mustard, pickles and vinegars. Those showing a tendency to obesity should avoid fats, sugars, pudding in which egg and sugar form considerable parts, as well as suet puddings, pastries of all kinds and fat meats. Elderly patients, subject to calculi, should avoid sedentary habits and excess of meats.

Those suffering from uric acid calculi will be benefited by avoiding animal foods for three to four weeks. During this period patients may eat dried or green vegetables and cooked fruits, not too acid or too sweet, but flavored by nutmeg or cloves. In other cases meats may be withheld completely or may be taken sparingly once a day, when they should be rare, lean and thoroughly masticated. The white meat of chicken may be served.

Alcoholic stimulants should not be taken. If the patient has made a practice of using them, Rhine wine or Moselle may be taken, well diluted with one of the alkaline waters. A small amount of lager beer, champagne or light hock may be allowed. The heavier clarets and sweet wines of all sorts should be forbidden.

Weak tea or coffee may be taken without sugar. Beverages that contain acids or sugars should be forbidden.

The renal colic may be relieved by a hot application, fomentation or long continued bath.

If, following all methods of treatment, the symptoms of calculus still continue and all methods have been employed to establish a positive diagnosis, exploratory surgical methods should be introduced.

Following the removal of the calculus, dietetic, hygienic and medicinal treatment should be introduced to prevent reformation.

The following remedies should be studied: *sarsaparilla*, *berberis vulgaris*, *benzoic acid* and the *benzoates*, *lycopodium*, *chelidonium*, *nitro-muriatic acid*, *piperazin* and *sepia*.

MOVABLE AND FLOATING KIDNEY.

Synonym.—Nephrotosis.

Etiology.—This term, floating kidney, is applied to a congenital condition. It has a mesonephron and is connected with the posterior wall of the abdomen. The movable kidney is an acquired condition. It is more common in women than in men. Relaxation of the abdominal walls, repeated pregnancies, tight lacing, muscular exertion and splanchnoptosis are the most frequent causes.

Symptoms.—There may be no symptoms. In some cases there is an indefinite sensation as of dragging. The patient often complains of a high degree of nervousness. Flatulence, palpitation of the heart, pain referred to the abdomen and pelvis, with irritable bladder and dysmenorrhœa are complained of. The bowels are usually obstinately constipated. The twisting of the renal vessels of the displaced kidney gives rise to symptoms (Dietl's crisis) which simulate hepatic colic, especially if the pain is referred to the gall bladder, and jaundice and other indications of acute stasis are present.

Diagnosis.—This can usually be determined by bimanual palpation during deep inspiration, when the patient is in the recumbent position. The kidney is felt under the hand as a smooth, movable tumor, pressure upon which produces the sensation of a peculiar sickening pain. The right kidney is most frequently affected.

Prognosis.—While it does not usually endanger life, it is a source of trouble and has been known to cause death by becoming incarcerated, inducing uremia.

Treatment.—As a prophylactic, tight lacing and constricting bands about the waist should be avoided. Emaciated subjects should rest in bed. A fattening diet should be administered in order if possible to develop the fatty capsule of the organ and render the kidney support. The patient should avoid straining and constipation and all conditions that induce the latter. Women should support their clothes from the shoulder. Well fitting bandages that will support the abdomen are of service. The adhesive bandages recommended in cases of enteroptosis are useful here.

In cases when other means fail, suturing the kidney in its normal position, nephrorrhaphy, is of service. Nephrectomy is seldom advisable, for it is frequently found that one kidney is not sufficient to eliminate the urea and death results.

In connection with the treatment as outlined, the patient should receive a nutritive diet. The skin should be well cared for and all measures that will assist in overcoming a neurasthenic condition should be introduced.

While remedies have no influence on the condition in general, they frequently meet particular symptoms which may arise. Of those that should be studied are *ignatia*, *nux vomica*, *strychnia*, *arsenicum*, *cinchona* and *pulsatilla*.

HEMATURIA.

Synonym.—Renal epistaxis.

Definition.—This term is applied to the presence of blood in the urine in such a condition that the red-blood corpuscles can be demonstrated.

Etiology.—It occurs as a result of acute nephritis, embolism of the renal artery, carcinoma of the kidney, renal tuberculosis, renal calculus, echinococcus and injury to the kidney. It may occur as a result of alteration in the blood, as in leukemia, pseudoleukemia, pernicious anemia, purpura, hemophilia, certain of the infectious diseases, as well as certain toxic agents, as cantharis, turpentine, carbolic acid.

Hemorrhages from the bladder result from cystitis, calculus, tuberculosis, injury and vesical hemorrhoids.

Hemorrhages from the urethra result from specific urethritis, calculi and injury.

Symptoms.—In renal hematuria the blood is intimately admixed with the urine. The urine at the beginning is the same color as that at the end of micturition. If the hemorrhage is from a point between the pelvis of the kidney or in the ureters there will be cylindrical blood clots and casts of the ureters. If the hemorrhage is from the bladder the urine first voided is not bloody. The blood being heavier collects at the fundus of the bladder and is voided later. If the hemorrhage is from the posterior portion of the urethra it is expelled only towards the close of urination and often with painful tenesmus.

Diagnosis.—This is based upon the appearance of the urine and the chemical test, of which the guaiacum test is the most reliable. Equal parts of turpentine and guaiacum are shaken well together in a test tube; a few drops of urine are added to the solution. If blood is present, a blue color is developed. If the hemorrhage is from the kidney, the urine and blood are intimately mixed and there may be blood casts. If the point is below the kidney, the blood settles quickly and the urine is clear above; if it is in the ureter there are small cylindrical clots, but from the bladder there is oozing of blood.

Prognosis.—This is dependent wholly upon the cause and its amenability to treatment.

Treatment.—If possible the cause operative in the particular case should be determined. The patient should be placed in bed for rest, and a liquid diet administered. It should be remembered that a blood clot may stop the flow of urine. In some cases it will be found advisable to use the catheter.

Cases of renal calculus and similar conditions require surgical attention and the earlier this is given the better.

Remedies are of service in some cases in allaying certain symptoms which may arise.

Geranium maculatum should be studied in cases where there is a general relaxation of the parts.

Thlaspi bursa pastoris should be remembered when there is a chronic cystitis, dysuria and spasmodic retention of the urine present with renal colic, brick dust and phosphatic deposits in the urine.

Terebinthina.—This should be remembered in those cases in which there is nephritis, cystitis, tenesmus and albuminuria. There is blood present in the urine and the renal congestion is pronounced.

Cantharis.—This remedy should be studied in those cases in which there is cystitis and nephritis with a constant desire to pass the urine, which is passed in drops and contains albumin and blood.

Millefolium, *ippecac*, *crotalus* and *lachesis* should be compared in this list.

ANURIA.

Definition.—This is a condition in which there is no urine voided. It may result from a retention of the urine within the bladder or an arrest of the secretion from the kidney.

Oliguria is a condition in which the quantity of urine secreted in 24 hours is much diminished.

Etiology.—It may result from exposure, acute nephritis, renal hyperemia, the effects of cantharis, turpentine, mineral acids, the use of anesthetics, small-pox, typhus, shock, collapse or an obstruction in the ureters.

Symptoms.—The use of the catheter will distinguish complete from partial suppression or retention of the urine.

Treatment.—In the mechanical form the treatment is similar to that of calculus and hydronephrosis or tumors. If due to renal congestion, warm baths, oxygen inhalations, subcutaneous saline injections and hot saline enemata are helpful. *Aconitum napellus* is indicated if the trouble is due to exposure to cold. *Terebinthina* and *cantharis* should be considered if there are renal congestion and inflammation. *Apocynum* should be remembered if there is dropsy. *Glonoin* should be studied if there is evidence of heart failure.

HEMOGLOBINURIA.

This is a condition in which the coloring matter of the blood appears in the urine.

It is most commonly either of a chemic or bacterial origin. Mineral acid, carbolic acid, copper sulphate, quinine, typhoid fever, diphtheria, malaria, small pox, septicemia and syphilis are among the causes.

In these cases the urine presents a bloody appearance, but no red blood corpuscles are found, only the coloring matter of the blood is present.

The prognosis and treatment depend upon the cause. The remedies that have been of most service are *crotalus*, *phosphorus* and *ferrum phos.*

PHOSPHATURIA.

In this there may be a condition in which the earthy and alkaline phosphates are constantly and abnormally eliminated. In another condition these are but transiently eliminated and again the phosphaturia may be secondary to a catarrhal condition.

Treatment.—*Phosphoric acid* is usually sufficient to control the disease except in those cases in which the catarrhal condition is prominent. Then this must be corrected.

OXALURIA.

This is a term used when there is an abundance of the oxalate of lime crystals in the urine.

Symptoms.—Accompanying the condition the urine is highly colored. The patient is melancholy, hypochondriacal and is disturbed with insomnia, flatulence, loss of strength, emaciation and neuralgic pain variously located. Furuncles may appear in various parts of the body.

Treatment.—The patient suffering from oxaluria should have a diet that is rich in phosphates, whole wheat bread, beef, eggs, calf and sheep brains. Alcohol of all kinds should be avoided. Of the remedies *oxalic acid*, *nitro-muriatic acid*, *berberis vulgaris* and *senna* are those most frequently indicated.

ABSENCE OF THE KIDNEY.

This condition may be congenital or acquired. One kidney may be absent, hence it should be known that the patient has both kidneys before removing one. In rare instances three kidneys have been found in one body and in a few still born fetuses both organs have been absent.

HORSESHOE KIDNEY.

This abnormality is produced by a coalescence of the two lower poles of the kidneys, so that a horseshoe-shaped organ is produced. The hila of the organs have been found united.

The condition does not produce any symptoms and may be discovered only accidentally.

BENIGN TUMORS OF THE KIDNEY.

Of these the Lipoma is the rarest and is small. The fibroma may be mistaken for a tubercle and is met with more frequently.

MALIGNANT GROWTHS OF THE KIDNEY.

Etiology.—They may be sarcoma or carcinoma and may be either primary or secondary. No cause can be given for many cases of primary cancer and yet renal calculi and traumatism have been mentioned in certain cases. The secondary form may result from a new growth in a neighboring organ.

Men are more frequently affected than women. They are usually found in those of fifty years of age or over, but they have been observed in children.

Pathology.—Primary cancer usually involves but one kidney. The secondary cancer is usually in both organs. The primary form is usually a diffuse infiltration. On inspection, the new growth may present a dense fibrous appearance; in other cases it may be soft and of a medullary character, or it may be traversed by cavities containing colloid material. Hence there may be the fibrous, the medullary and the colloid carcinoma. The new tissue is usually grayish yellowish white. There may be numerous blood vessels which, rupturing, impart a reddish-brown or chocolate appearance. They may cause extensive extravasation of the blood. If the new growth becomes much enlarged it may displace the other abdominal organs.

Symptoms.—These may remain latent for some time, till the progressive emaciation and pallor lead to a careful investigation. Hematuria with enlarged kidney, in a person advanced in years, should always lead

to an investigation for carcinoma. The hemorrhage may be abundant and persistent or repeated at short intervals. This results in anemia and loss of strength. There may be no pain with the evacuation of the bloody urine; in other cases there is renal colic due to a stoppage of the ureters by a bloody clot. Pain in the loins may be complained of and pressure in this region usually elicits pain. If the kidney is enlarged there will be visible enlargement of the loin and of the abdomen. The tumor is usually painful, hard and nodular. Occasionally there may be fluctuation, due to cystic degeneration. If the tumor is small, it can usually be detected by bimanual palpation.

Extensive tumors displace the liver, diaphragm, lungs and heart upwards and cause dyspnœa, palpitation of the heart and constriction. Pressure upon the stomach results in nausea and vomiting, while pressure upon the intestines results in constipation. Patients thus affected emaciate rapidly and become exceedingly pale and death results within a year.

Complications, as rupture into the abdominal blood vessels, may cause death. Pressure upon adjacent nerves produces severe neuralgia. Pressure upon the vertebral column may cause spinal pressure, resulting in paralysis.

Prognosis.—This is unfavorable. Early operation might be of some service.

Treatment.—Internal treatment may relieve some of the distressing symptoms. Early nephrotomy may be considered, but is of little avail.

CARCINOMA OF THE PELVIS OF THE KIDNEY AND OF THE URETER.

A primary new growth at this location is uncommon. It is generally secondary to carcinoma of the kidney at another point. The symptoms and treatment are those of carcinoma of the kidney.

ECHINOCOCCUS OF THE KIDNEY.

This results from swallowing the ova of the tapeworm of the dog. The disease is generally unilateral, the left kidney being most frequently affected. The cyst is multilocular. There may be small remnants of renal tissue. The fluid may contain cholesterolin plates, crystals of uric acid and calcium oxalates. The healthy kidney may be hypertrophied.

Symptoms.—If large enough to be examined, the tumor is nodular and there is fluctuation. It should be distinguished from cystic kidney, abscess of the kidney and hydronephrosis.

The diagnosis is positive only when echinococcus vesicles, echinococcus scolices or the echinococcus hooklets can be demonstrated. At times the cyst ruptures, a milky turbid urine escaping. Examination of this by the aid of the microscope shows the true condition present. As in all other cystic formations in connection with the kidney, pressure symptoms will develop.

Prognosis.—If the true condition is recognized early and surgical treatment instituted, this is not bad.

Treatment.—Injection of 1-1000 mercuric chloride solution is of some service. Nephrectomy should be resorted to at once in these cases.

CYSTIC KIDNEY.

But little is known of the etiology of this disease. It is frequently congenital, and may be associated with club-feet and hare-lip. It is usually multilocular. The cavity is filled with fluid or a colloid material which contains no urea. In some cases no renal tissue can be recognized.

Symptoms.—The organ may attain such a size during fetal life as to interfere with delivery. If the child is born alive, the renal tumor is so large that death soon results from asphyxia and cardiac paralysis.

The condition may remain latent for years following birth. This should be distinguished from abscess, echinococcus, hydronephrosis and carcinoma. The patient complains of a sense of tension and of pain in the loin and abdominal cavity.

The development and pressure upwards give rise to dyspnea and palpitation of the heart. At times death is caused by suffocation or paralysis of the heart. Some patients have been known to die of uremia in consequence of suppression of the urine. The cysts may reopen and thus produce perforative peritonitis.

CYSTIC KIDNEY.

HYDRONEPHROSIS.

- | | |
|--|---|
| <p>1. There is frequently a peculiar thrill on percussion.</p> | <p>1. This is wanting.</p> |
| <p>2. It may be dependent upon the ingestion of the ova of the tænia echinococcus the tapeworm of the dog.</p> | <p>2. It is dependent upon some form of genito-urinary obstruction.</p> |

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|---|--|
| 3. Should a discharge of fluid take place, a microscopic examination will reveal the characteristic hooklets. | 3. There is a periodic discharge of a large quantity of fluid with a temporary disappearance of the tumor. |
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Prognosis.—This is unfavorable, as the cysts have a tendency to enlarge and result in various complications, as uremia and hemorrhage.

Treatment.—This is surgical. The cysts may be punctured. If the other kidney is healthy nephrectomy may be considered.

HYDRONEPHROSIS.

Definition.—This is a dilation of the pelvis and calices of the kidney, due to an accumulation of urine.

Etiology.—The conditions which result in a retention of the urine leading to this condition are: strictures of the ureter, either congenital or inflammatory, impaction of a calculus in the ureter, twisting of the ureter, as occurs in cases of floating kidney, pressure upon the ureter from without, as from tumors, inflammatory diseases, cicatrices and obstructions in or below the bladder, as from enlarged prostate and urethral strictures.

Pathology.—As a result of the retained fluid the pelvis and calices of the kidney become distended, and the continued pressure leads to atrophy and thinning of the walls of the cysts. Infection of the fluid takes place and a pyonephrosis results.

Symptoms.—These consist of a fluctuating tumor in the region of the kidney. As the tumor enlarges, the development is forward and downward toward the groin, in the line of the ureter. If the tumor is small no subjective symptoms will be developed. As the tumor increases in size symptoms that result from pressure may appear. There are nausea, vomiting, constipation and a sensation of tenderness in the abdomen.

In those cases in which the cause is twisting of the ureter due to a floating kidney, there may be an ex-

cessive flow of urine followed by a diminution in the size of the tumor.

Diagnosis.—This is based upon the discovery of the tumor in the lumbar region, extending along the line of the ureter. In doubtful cases the fluid may be examined by aspiration. The fluid has the characteristics of urine and contains urea and uric acid.

HYDRONEPHROSIS.

OVARIAN CYSTS.

- | | |
|--|--------------------|
| 1. Not as movable. | 1. Freely movable. |
| 2. Aspiration shows urine, urea and uric acid. | 2. Shows pus. |

HYDRONEPHROSIS.

ASCITES.

- | | |
|---|---|
| 1. Tumor at first is localized in renal region. | 1. Changes position with that of patient. |
| 2. Aspiration shows urine, urea and uric acid. | 2. Does not show these characteristics. |

Prognosis.—If unilateral, it is not necessarily serious. If bilateral, the prognosis is usually unfavorable. Suppression of the urine, rupture of the sac into the abdomen and suppuration are the unfavorable conditions.

Treatment.—If the condition gives rise to no special distress, it should be left alone. If it is due to calculus, massage of the kidney may dislodge it. The opening and draining of the sac is preferable to aspiration. Nephrectomy should not be undertaken till it is known that the other kidney is healthy.

EMBOLIC INFARCTION OF THE KIDNEY.

This is caused most frequently by a detached thrombotic vegetation from a diseased aortic or mitral valve, which is carried by the blood current to a small branch of the renal artery and there becomes impacted. It may result from the impaction of a small fragment of a tumor of the myocardium or other parts.

On account of the oblique position of the left renal artery to the aorta, it is more frequently involved than the right. If the embolus is lodged in the main trunk of the renal artery, the whole kidney may become necrosed. If it is carried into one of the smaller arterial branches, a wedge-shaped renal infarct results, with its base at the surface of the kidney and its apex at the medullary aspect of the organ. This portion quickly undergoes a coagulation necrosis and acquires a yellowish color. Later fatty degeneration and absorption of the area take place.

Symptoms.—There is sudden pain in the back, with tenderness under pressure, a chill followed by an elevation of the temperature and vomiting. The urine becomes bloody and contains albumin and tube casts. In connection with the renal symptoms, a heart lesion or other causative condition that might be the source of the embolus is present. The symptoms may disappear in a few days only to reappear.

Treatment.—The patient's clothing should be warm. A diet with eggs and an amount of farinaceous food

added to milk should be prescribed. If the pain is severe, hot applications or other palliative means may be required. The cause should receive treatment.

PARASITES OF THE PELVIS OF THE KIDNEY.

The pallisade worm, *Eustrongylus gigas*, is found in the pelvis of the kidney. It gives rise to symptoms which simulate pyelitis and causes pain in the kidney, vesical tenesmus, pyorea and hematuria.

ANEURISM OF THE RENAL ARTERY.

This is rare and is seldom recognized during life. The patient dies suddenly, and a post-mortem examination shows a rupture of the renal artery.

There is a tumor with an expansible pulsation palpable in the line of the renal artery.

Renal colic as from renal calculus with hematuria are the symptoms usually complained of.

Treatment is unsatisfactory.

PERINEPHRITIC ABSCESS.

Definition.—This is a suppurative inflammation of the tissue surrounding the kidney.

Etiology.—This is dependent upon the activity of the streptococcus pyogenes, staphylococcus pyogenes and bacillus coli communis. Exposure to cold may be a contributing cause in the development of this infection. Traumatism is a frequent cause, of perinephritic abscess. Falls, blows, violent concussions of the parts and heavy lifting may be active in its development. It may follow septiopyemia and typhoid fever, or it may extend from an adjacent perirenal nephritis. It may occur from a wound, surgical and suppurative lesions.

Pathology.—There is a purulent infiltration of the perirenal connective tissue which speedily becomes transformed into a collection of pus. The pus is seldom encapsulated. The kidney is freely movable. The pus may involve the tissue of the kidney and even cause purulent disintegration of the organ. There may be an erosion of the dorsal vertebræ and purulent infiltration and disintegration of the adjacent muscular structure.

Symptoms.—The disease may appear insidiously, but more frequently there are acute pain and tenderness referred to the affected side. However, pain may be local or general. The local symptom is pain in the loin which is increased by pressure. The patient

walks with the upper part of the body bent forward to support the diseased side and while in bed he lies upon the affected side.

Diagnosis.—It is impossible to outline the position until a visible swelling and palpable resistance have appeared in the loin. This appears first in the lumbar region, but it gradually extends towards the side forward. There may be bulging posteriorly. The skin becomes edematous, but the urine remains unaltered. There may be irregular fever and chills.

PERINEPHRITIC ABSCESS.

1. Usually follows traumatism.
2. The pus burrows and points at a part distant from point of traumatism.

RENAL ABSCESS.

1. Usually accompanies pyemia.
2. The pus and evidence of the abscess appear in the urine.

Of the complications, pleurisy is the most common. The duration of the attack may be four to six weeks, when it may terminate by absorption of the pus. It may rupture, the pus passing into the stomach, intestines, pelvis of the kidney, ureter, pleural cavity or bronchi. Rupture into the stomach may be the cause of fatal peritonitis. If long continued the suppuration may result in fatal exhaustion and amyloid degeneration.

Prognosis.—This is favorable if the abscess is evacuated early; if not, and rupture has taken place, it is as a rule unfavorable. If evacuation is not sufficiently free and suppuration is continued over a prolonged period, amyloid disease may result.

Treatment.—During the early stages before fluctuation can be elicited, the patient should remain in bed; a warm sponge bath should be given each morning and cold applications made.

As soon as fluctuation is detected, there should be a thorough incision, the cavity irrigated with an iodine solution, one drachm to the pint of water. In some cases an exploratory puncture with a needle may be needed in diagnosis. Later surgical methods advise against washing out the pus cavity, claiming it lowers the vitality of the omentum and spreads the pus.

PYONEPHROSIS.

Definition.—This is a collection of pus in the pelvis of the kidney.

Etiology.—The causes are similar to those of hydronephrosis, as obstruction of the ureters, calculus, tuberculosis, gestation and all of those numerous conditions that result in obstruction of the ureters, the retention of the fluids and the formation of pus.

Pathology.—The mucous surface of the kidney is thickened and covered by pus and there is necrosis of the lining membranes. The termination of such a condition is the development of a suppurative nephritis or an interstitial nephritis.

Symptoms.—The symptoms are similar to those of hydronephrosis together with the presence of pus in the urine, with soreness and sensitiveness of the renal region.

Treatment.—The condition is surgical. The point of obstruction should be removed and the health of the patient maintained. In some cases the main drainage of the bladder is sufficient; in other cases the kidney should be the point of attack with drainage or removal.

PYELITIS.

Synonym.—Surgical pyelo-nephritis.

Definition.—This is an inflammation of the pelvis of the kidney. It may be catarrhal, hemorrhagic or purulent in character.

Etiology.—This may result from exposure to cold, from infectious diseases as typhoid fever, small pox, pneumonia, erysipelas, scarlet fever, etc. A toxic pyelitis may develop as the result of the ingestion of certain remedies, as mineral acids, carbolic acid, cantharides, turpentine, etc. Inflammatory infection of the bladder may extend to the renal pelvis and become the cause of this disease as well as carcinoma, tuberculosis and other similar diseases.

Pathology.—The pathological process usually extends from below upwards involving first the pelvis of the kidney and later the parenchyma. Foci of supuration develop in one or both kidneys. These may be single or multiple and, by coalescence, form a single abscess which breaks into the pelvis of the kidney, the pus being discharged with the urine. As the case advances, the kidney becomes a collection of pus. If the ureters should be partially and completely obstructed, the renal pelvis and calices are greatly distended with pus (pyonephrosis).

Symptoms.—These vary with the stage of the disease and its severity. During the early stages there may be a backache with tenderness, especially upon

pressure over the area of the kidney, with a rise of the temperature, chills and sweating. The urine becomes turbid.

Mild cases may run their course in a short time and recovery take place, and no marked or continuous symptoms be noticed.

In the more severe cases a chill followed by a sharp rise of the temperature is present; pus is recognized in the urine which renders it milky. The temperature curve will show the severity of the condition. The remission and the repeated chills are characteristic. In mild cases the temperature shows a slight evening rise, dropping to normal before morning. This is particularly noticeable if the condition is of tubercular origin. As the process continues the patient becomes anemic, loses flesh, strength and appetite; night sweats appear and there is a temperature constantly above the normal. There may be long periods of remission and the disease may be of years' duration.

The case may assume a most virulent type and the kidney become the seat of several pus foci, which coalesce and the patient exhibits a septic condition. The pus may become inspissated and block the ureters.

As the kidney becomes distended with pus, it forms a sensitive tumor, which can be palpated in the loin. The temperature wave in these cases is high and irregular and there may be general pyemia if measures to relieve the condition are not introduced promptly.

Diagnosis.—It is often impossible to make a positive diagnosis, as the primary disease causes this con-

dition to be overlooked. There is tenderness to pressure in the renal region. The features will vary according as the case is acute, sub-acute or chronic. In the mild cases there may be an excess of mucus in the urine and tenderness on pressure. Leucocytosis is present early in the case. In most severe cases there will be a varying amount of pus, but so long as the kidney is not involved the filtered urine will not contain any albumin. The chronic cases are purulent in character and are associated with purulent nephritis; death results from uremia. Urinary septicemia or amyloid degeneration are frequent complications.

Prognosis.—This depends upon the cause and its curability. Mild cases may recover; suppurative cases that have not involved the kidney may recover; but if the kidneys are involved the chances of recovery are doubtful and surgical procedure should be resorted to early.

Treatment.—In the management of these cases the patient should be confined to his bed and the room should be kept at a uniform temperature. Fluids should be given in abundance to drink, to dilute the urine as much as possible in order to avoid stasis in the ureters. Boiled milk, whey, alkaline or carbonated water should be employed.

The causative complaint should receive attention. If a cystitis is present it should be relieved; if a calculus is present it should be removed by surgical means; any stricture or enlarged prostate should be corrected and if needed the bladder or kidney should be drained.

The pain, if severe, may require hot poultices or fomentations applied over the kidney. A small blanket soaked in hot water run through a wringer and applied quickly, while hot, over the seat of pain and then protected by a dry cloth, is of service. Cupping may be helpful.

In acute cases when the fever is high and the pain is severe, *aconite* or *veratrum viride* should be studied. When the dry skin has given way to a moist hot skin with throbbing of the carotids and dilated pupils, *bella-donna* should be studied. If the patient becomes restless, worse towards night, *rhys toxicodendron* should be studied. If there is pronounced tenderness over the kidney with blood in the urine, *cantharis* and *terebinthina* should be compared. If the case has advanced and there are sticking, tearing pains in the renal region, which extend to the hips, loins, testicles and labia, *berberis vulgaris* should be studied. If there is a constant urging to urinate with violent pains in the glans penis that extend to the thigh, the urine dribbles and the urethra and prostate glands are inflamed, *pareira brava* should be remembered.

If the urine is yellow, purulent, bloody, scanty, high colored and highly acid, with pain and soreness in the left renal region, with more or less pus in the urine, *uva ursi* should be studied. If the urine smells like horses' urine, is of high color, sometimes dark and again light, and has a large percentage of pus, *benzoic acid* should be remembered. If there is a chronic history of kidney diseases, the urine is scanty and con-

tains ropy muco-purulent sediment, *chimaphila umbellata* should be studied. If there is a copious discharge of mucus, muco-purulent with hyperacidity of the urine and a constant desire to urinate, *buchu* is indicated. When drainage has once been established and there is more or less irritation, uric acid, gravel and partial suppression of the urine, *hydrangia* should be remembered. *Boric acid* is another remedy to be studied in this connection, as are the *benzoate of soda*, *salol* and *piperazinum*.

UROCYSTITIS.

Synonym.—Inflammation of the Urinary Bladder.

Etiology.—This is frequently dependent upon bacteria, as the streptococcus, staphylococcus and bacterium coli, with exposure to cold, especially of the abdomen, while the body is covered with perspiration, wetting the clothing, cold baths and sponging. Traumatism of the abdomen and introduction into the bladder of catheters and other surgical instruments, which have not been properly sterilized, are causes. The extension of chronic gonorrhea from the posterior urethra may be an etiological factor also. Previous disease of the bladder, the ingestion of cantharides, turpentine or mineral acids also cause this disease.

Pathology.—The mucous membrane of the urinary bladder may show redness, swelling and an increased secretion of mucus. As the condition becomes sub-acute and chronic the color becomes dark and red or a reddish gray. If the process is continued, an inflammatory hyperplasia of the connective tissue results, which forms bands on the inner surface of the bladder, so that in some cases the organ is reduced in size.

The urine presents a turbid appearance. In some cases the urine is mixed with pus or blood and is alkaline in reaction. Abscess of the wall of the bladder may follow and even result in a rupture of the organ.

Symptoms.—According to the duration of the disease the condition may be acute or chronic. Both va-

ieties are characterized by a deranged micturition and alteration in the character of the urine. Acute urocystitis is characterized by difficult and frequent micturition with vesical tenesmus. But a few drops may be voided at each attempt. At times the urine may be retained. There may be large quantities of mucus, blood or pus (pyuria), and on standing a greenish sediment may collect in the vessel. There is a sensation of heaviness in the lower part of the abdomen. The duration of an attack may be from a few days to weeks.

Chronic urocystitis may develop as a sequence of an acute attack, especially if there has been recurrent attacks of the acute form. The pain and vesical tenesmus become constant, although less pronounced than in the acute attacks. The urine contains pus and blood and acquires an alkaline reaction. Fever is not constant, but may be present; at times there may be an absorption from the bladder and urinary septicemia may result.

As the case advances control of the sphincter of the bladder is lost and the patient is unable to retain the urine. As the walls of the organ are thickened, eccentric hypertrophy of the bladder results, so that the viscus can be felt above the pubes, although it contains but a small quantity of urine.

Diagnosis.—This is based upon the clinical symptoms as outlined and examination of the urine.

Prognosis.—This depends upon the causative factors and the co-operation of the patient.

Treatment.—Care should be exercised that the abdomen be not exposed to cold draughts while the body is overheated or perspiring. In the introduction of any instrument into the bladder or urethra, care should be exercised that it is thoroughly cleansed. Persons suffering from acute urethritis should remain in bed. Those with chronic urethritis should be careful of their clothing and a woollen abdominal bandage should be worn. A bath 90° F., for fifteen or thirty minutes, should be taken three or four times a week. Following the bath warmed clothing should be put on and the bed should also be warmed.

Irritating articles of food and drink should be avoided, particularly strong alcohol, beer, spices, acid fruits or asparagus. Boiled milk and weak tea are beneficial.

Constipation should be avoided, massage of the colon and hot water enemata are beneficial. Salty foods should be avoided, as well as spiced foods, fried pork and greasy food. Oatmeal and cornmeal mush are good for breakfast.

In acute cases one of the following remedies should be studied:

Terebinthina is useful when the urine is scanty and bloody and there is severe strangury with soreness of the bladder with heaviness and pain in the region of the kidney.

Cantharis: This is indicated when there is a constant desire to urinate with complete strangury. There is excessive burning distress in the urethra and

a constant desire to urinate. The urine contains blood. There is pain in the loins, kidneys and abdomen with so much pain on urinating that a single drop is not passed without moaning.

Aconite should be studied in the acute early stages when the fever is high, the pulse rapid and the patient is restless and uneasy.

Belladonna should be remembered where the skin has become moist but is hot, the pupils are dilated and the carotids are throbbing.

Triticum repens should be studied in cases of cystitis with difficult urination. There is a catarrhal condition of the whole urinary tract. The remedy will be found to have a most soothing influence upon the whole surface.

Sandalwood oil should also be remembered in this connection as well as uretropin.

Stigmata maydis should be studied in cases of retention of the urine when there is a constant desire to urinate. The urine contains mucus, blood and pus.

Parcira brava is of use when there is a constant urging with tenesmus. The urine contains much pus and mucus and has an ammoniacal odor. Its passage is attended with tenesmus and violent agonizing pain.

Hyoscyamus should be remembered in those spasmodic cases, when the bladder is greatly distended with turbid urine, which contains much pus and mucus.

CYSTOPLEGIA.

Synonym.—Paralysis of the Bladder.

Etiology.—This frequently occurs as a symptom of disease of the spinal cord: myelitis, transverse myelitis, tabes dorsalis, multiple sclerosis or spinal concussion. Softening of the brain is also attended with paralysis of the bladder, as is opium poisoning. Excessive distension of the organ may be followed by paralysis of the bladder as a sequence.

It may occur as a nervous condition from hysteria and hypochondriasis as well as onanism and senile marasmus.

Symptoms.—Paralysis may involve the sphincter or the detrusor muscle of the bladder. It requires most powerful efforts to expel the urine. The greater degree of paralysis the more nearly does the evacuation approach gradual dribbling. The bladder may become so distended that it will rise to the level of the umbilicus and result in an excessive stretching of the detrusor muscles. In time the power of voluntary evacuation is lost and the catheter must be constantly resorted to. Paralysis of the sphincter muscle results in a dribbling of the urine, which at first is indicated by an escape of urine into the clothing during coughing and laughing. The mouth of the viscus being partially open, bacteria readily gain admittance; decomposition of the urine and inflammation of the bladder result.

PARALYSIS OF DETRUSOR.

1. The urine is retained for some time before it gives rise to marked symptoms.
2. The sphincter muscle being in a normal condition retention and distention take place.
3. There is a gradually developing tumor above the symphysis.

PARALYSIS OF SPHINCTER.

1. The urine is not retained but passes away from the first.
2. As the sphincter is paralyzed retention and distention are impossible.
3. The urine passes away and a tumor from retained urine is impossible.

Prognosis.—This depends upon the causative factor and whether it is curable or not.

Treatment.—While the paralysis continues attention should be given to a proper evacuation of the bladder. In some cases the bladder can be evacuated by external pressure upon it. If this is not sufficient, the catheter must be resorted to, in which case extreme care should be exercised that the instrument is properly sterilized, that infection may not follow its use. If artificial means are employed to empty the bladder they should be used three times a day at least.

Cold friction over the region of the bladder is beneficial. Hypodermic injections of strychnine or ergotin may be tried as well as the faradic and galvanic currents.

The remedies that should be remembered in paralysis are *arsenicum*, *causticum*, *gelsemium* and *nux vomica*. Where the urine is retained, *aconite*, *cantharis*, *pareira brava* and *terebinthina* should be studied.

CYSTOSPASMS.

Synonym.—Spasm of the Urinary Bladder.

Etiology.—This may be purely a nervous disturbance or it may result from an anatomic alteration, as disease of the bladder, spinal cord or brain. It occurs most commonly in hysterical, hypochondriacal and neurasthenic subjects. Masturbation may be a predisposing cause. It may be reflex from disease of the ureter, or ovaries, or from intestinal parasites. The ingestion of asparagus and the drinking of wine and beer have been known to cause it.

Symptoms.—The spasm may involve the sphincter or the detrusor muscles, or both. A spasm of the detrusor may be manifested by an abnormal desire to urinate even when the bladder is empty. It may be mistaken for hyperesthesia of the bladder. The latter, however, is a permanent condition, while the spasm of the detrusor is but a transitory one.

Spasms of the sphincter are attended with disturbance in attempting to evacuate the bladder, the urine being either completely retained or evacuated drop by drop. Upon attempting to evacuate the bladder, intense pain is complained of, which radiates to the testicles and glans penis. Simultaneous spasm of both the sphincter and the detrusor produces abnormally increased desire for micturition, obstruction and pain. The pains may be so intense that the patient becomes pale, is bathed in cold perspiration and collapses.

Nervous spasms of the bladder are differentiated from those of an anatomic origin by the unchanged condition of the urine.

Prognosis.—While cystospasm is not dangerous to life, it is frequently very distressing and difficult to overcome.

Treatment.—During the spasm the patient should take a hot hip bath and be urged to pass the urine while in the bath. Hot applications should be applied over the bladder. Copious rectal enemata are of service in some cases. If other means fail, a catheter must be resorted to.

The general nutrition of the patient should be improved and the attention should be directed to the causative condition.

Cannabis Indica should be studied where there are spasms of the bladder with hyperesthesia of the genital organs, in both male and female. There is erotomania in the female, and sexual hyperesthesia, priapism and spermatorrhea in the male.

Cantharis should be studied when there are spasms of the bladder and the urethra. There is a constant desire to urinate with urging before and after urination. But a few drops of urine are passed at a time with violent tenesmus, pain in the bladder and cutting pains in the urethra.

Asafætida is indicated when there are spasms of the bladder during and following micturition.

Uva ursi should be remembered when there is a spasm of the bladder with straining and a discharge of pus, tenacious mucus and clots of blood.

Salix nigra: This remedy should be studied in those cases in which there are spasms of the bladder and sexual excitement, satyriasis, erotomania, or spermatorrhea.

HYPERESTHESIA OF THE BLADDER.

Etiology.—This is observed in hysterical, hypochondriacal and nervous patients who have been addicted to alcoholism, venereal excesses, mental over-exertion, excessive indulgence in tobacco and masturbation.

Symptoms.—Patients complain of severe vesical tenesmus when the bladder contains but a few drops of urine. If the desire to urinate is not promptly responded to, a most violent pain and tenesmus is complained of; a complete suppression of the urine may result if the call is not attended to. Tenesmus may be so constant that the patient is obliged to withdraw from society. The urine may appear normal.

Diagnosis.—This is based on the symptoms as outlined.

Prognosis.—This is favorable, if favorable mental influences can be exerted.

Treatment.—The patient should be assured that the disorder is purely nervous and without any pathological change. All excesses should be avoided. The desire to micturate should be postponed as long as possible. The primary disorder should receive attention. The careful passage of a steel sound is frequently of service.

Stigmata maydis is frequently of service in these cases and renders the parts less irritable.

Triticum repens is another remedy to be studied

where the patient is sensitive to the least irritation of the bladder.

Salix nigra should be studied where there is pronounced sexual excitement, satyriasis and excitement of the whole genital system.

Other remedies that should be compared are *hyoscyamus* and *mono-bromide of camphor*.

FOREIGN BODIES IN THE BLADDER.

Hair has been recognized in the urine, small pieces of bone and teeth have been found in the bladder. The author was called upon to remove a portion of a lady's hat pin that had been introduced into the male bladder. Catheters, hair pins and pipe stems have been found in the organ.

Of the animal parasites that have been found in the bladder are *Distoma*, *Filaria* and the *Echinococcus* bacteria, yeast and the thrush fungus. The *Lep-tothrix* have been found in the urine.

PARASITES OF THE URINARY BLADDER.

Free *echinococcus*-cysts have been recognized in the bladder. *Distoma hæmatodium* has occurred in the blood vessels of the bladder where it has produced ulceration hemorrhage of the mucous membrane.

Vegetable parasitis: The bacteria especially have been recognized in the urine and produce bacteriuria. Special *sarcinæ* have been found in the urine.

Triticum repens, *salol* and *berberis vulgaris* are the class of remedies usually required in these cases.

CARCINOMA OF THE URINARY BLADDER.

This is uncommon. It is more frequent in women than in men and is commonly secondary to a similar condition of the uterus, prostate gland or testicle.

Pathology.—Its most common site is at the neck or at the base of the bladder. It may undergo degeneration and carcinomatous ulcers develop.

Symptoms.—The true nature of the condition may be concealed for a long time, but the development of a chronic cystitis in an elderly person with pallor, and an increasing emaciation, hematuria and enlargement of the inguinal glands should be suggestive of this disease.

The diagnosis is confirmed by the use of the microscope and a piece of the neoplasm.

Prognosis.—This is grave.

Treatment has not been successful, but early operation has done something in relieving pain and distress temporarily.

NOCTURNAL ENURESIS.

Etiology.—This is a disease of childhood. It may be the result of defective education. It is a natural condition of infancy and is usually overcome by correct training, such as waking the child at night. In some cases it is due to indolence, the child not wishing to leave its bed; in other cases it is dependent upon an inappropriate evening meal, one that is too large or is taken too late, or containing too much liquid. It may be the result of reflex irritation from intestinal worms, vesical calculus, phimosis or adenoid vegetation of the bladder. Disease of the central nervous system, as epilepsy, may be the cause, while in the adult it may result from cerebral softening and general paralysis of the insane.

Symptoms.—This consists of an unconscious evacuation of the urine in bed during profound sleep. It occurs usually during the first few hours of sleep. In some cases it occurs at long intervals, in others more frequently. The patient often presents a pallid appearance and a nervous, excitable manner. It is usually curable and frequently ceases at the twelfth year of life. Only in a very small percentage does it persist through life, when it may be complicated by diurnal enuresis, the clothing being wet by coughing, laughing and making expulsive efforts. The patient avoids company and has been known to commit suicide.

Prognosis.—As a rule, it is curable and never of itself endangers life.

Treatment.—The diet and training of the child should be regulated. The evening meal should be partaken of at least two hours before retiring, too much liquid, potatoes and heavy articles of food being avoided. The mattress should be firm, the foot of the bed slightly raised and the bed covering light. The child should be trained to lie on his side. The placing of a towel about the body with the knot on the back, so that the child will not lie upon his back, is beneficial. Every two hours during the night the child should be aroused from his sleep to pass his urine. Sponging of the spinal and genital regions with cold water before retiring is of value.

Any causative condition present should be corrected: phimosis, intestinal worms or irritation of the urethra. The general condition of the child should be carefully considered as regards anemia or nervousness; the first requires a good nourishing diet and such remedies as may be indicated, while the latter requires plenty of sleep and tepid baths on retiring with a cool sponge and rub each morning.

Many of these cases require a most thorough investigation and a line of treatment instituted that will act as a general tonic to the system. This may be brought about by means of a cool sponge bath or salt glow each morning, and a tepid bath each night. The child should have sufficient exercise. The urine should be carefully examined from time to time and if found to contain uric acid or other abnormal ingredients, the diet should be correspondingly modified, especially

should meat and nitrogenous foods be restricted. The child should drink plenty of water during the early part of the day. The bowels and bladder should be evacuated before retiring at night, and if possible the patient should be awakened to urinate during the night. He should be taught to retain his urine as long as possible during the day.

In some cases the passage of a cold steel sound and dilating the deep urethra is of service, as is circumcision or relief of an impinged clitoris in others.

Sulphur.—This remedy has been found of great service clinically in controlling many of these cases. There is incontinence of the urine and a frequent desire, especially at night, to evacuate the bladder; the desire comes suddenly and is imperative; if not gratified the urine is passed involuntarily. The urine is highly colored and excoriates the parts. The patient is frequently of a scrofulous habit and suffers from a chronic cutaneous eruption.

Belladonna.—This remedy should be studied where there is paralysis of the sphincter muscles. The patient is usually of light complexion, has light hair and blue eyes, and complains of starting during sleep, which is restless.

Equisetum hyemale.—This remedy should be studied in the case of those who are distressed with cystic irritation and nocturnal enuresis, and in the dysuria of women where there is frequent urging to urinate. There is a sensation as though the bladder was constantly distended with urine, and there is a constant dribbling of the urine in old men.

Benzoic acid.—This remedy should be studied in those cases in which the urine is deep red and has a strong odor. The urine usually contains oxalic and uric acid crystals. The strong urinous odor and deep red color are characteristic.

Ignatia should be remembered in those cases in which the child of mild and gentle disposition is restless at night.

Santonine.—This remedy and *cina* should be carefully studied in those cases associated with intestinal parasites. The child is irritable and cross and desires to be carried; he is rubbing and picking his nose continually.

Calcarea carbonica.—This remedy should be studied in scrofulous children who are fair, fat and flabby. They sweat about the head and the abdomen, and the glands are enlarged.

Causticum.—This remedy should be studied when coughing and sneezing cause loss of urine, and there is a weakness of the sphincter vesicæ.

Pulsatilla.—This is beneficial for those girls who pass large quantities of pale urine during the day, passing it involuntarily while sitting or walking about.

Gelsemium is of service where there is a partial or complete paralysis of the sphincter vesicæ. The child is usually of a thin, nervous type.

Ammonium valerianicum should be remembered in nervous, hysterical subjects.

Rhus aromatica should be studied in cases of nocturnal enuresis, with dribbling of the urine.

Verbascum thapsus is useful in nervous patients who have no control of the urine; there is a dribbling and nocturnal enuresis.

Plantago major is of service when the urine is profuse and colorless.

Cubeba should be studied where there is a general catarrhal condition of the urinary tract.

Conium should be studied in the cases of old men when the urine cannot be retained. During micturition the urine frequently intermits.

Phosphoric acid is indicated in the cases of those who have suffered from self pollution or solitary vice, which is the cause of the weakness and involuntary urination.

Sepia should be studied in cases of incontinence of the urine at night. The urine is very offensive and deposits a clay-like sediment, which adheres to the chamber.

Thyroid has proven curative in several cases in which all other remedies have failed. Two tablets of the 1x three times a day have corrected the condition in children.

UREMIA.

This is a term applied to a group of symptoms which arises in cases of nephritis and hepatic insufficiency, when there is a defective elimination and auto-intoxication present. It may be acute or chronic.

Etiology.—The cause of uremia has not been definitely determined. That it is always dependent upon the retention of urea in the system is questionable. That there is in some cases a derangement of the urea forming function of the liver appears probable. For a discussion of the various theories that have been advanced as to the etiology, and the corresponding arguments that they are not true, the reader is referred to a cyclopedia on the subject.

Pathology.—Nothing definite has been determined.

Symptoms.—These vary in different cases and different symptoms may develop first. The most common symptom is some form of a spasm. This varies from a mere twitching of a muscle to a general convulsion. The convulsion may simulate epilepsy. In other cases the first symptom may be a sudden appearance of acute mania with delusions and delirium, or an attack of extreme dyspnea may be the first indication of such a condition.

In the majority of cases headache, which may be general, local or one-sided, develops with vomiting—first of the food recently taken, while later it appears independent of anything in the stomach; a diarrhea

obstinate in character, is often present. The vision may be impaired, or there may be a complete loss of vision temporarily, which is dependent upon a spasm of the central artery of the retina. There may be a persistent insomnia. In advanced cases a typhoid state may develop and the patient may become comatose or semi-comatose, with a dry tongue, dry skin, sordes upon the lips, twitching of the muscles and a Cheyne-Stokes type of breathing. The temperature is elevated in the acute form, while in the chronic form it is below normal.

The system may rid itself of the toxic material either by a diarrhea, vomiting or a perspiration. While these conditions may require attention they should be looked upon as beneficial in some cases, and as nature's method of relieving the system of toxic material.

Diagnosis.—A knowledge of the presence of a nephritis should enable one to recognize the development of uremia. If coma has developed the odor of urine from the breath, the high arterial tension, the small quantity of urine excreted, and the presence in it of albumin and casts, together with a lower amount of urea, should complete the diagnosis. Alcoholic coma is not always easy to distinguish, but careful attention to the points given should assist in differentiating. The coma of opium poisoning should not be mistaken for uremic coma. The patients should avoid exposure to cold.

Prognosis.—This is not good. Acute uremia is especially serious. Those cases dependent upon acute nephritis may recover.

Treatment.—This varies according to the conditions present. Something can be accomplished in the way of prophylaxis in certain cases. The diet should be such as will not overtax the liver or kidneys and yet the nutrition should be maintained. Milk combined with carbohydrates and one of the alkaline waters meets the indications in many cases. Together with the diet and attention to the kidneys, it should be ascertained if the liver is functioning normally, and if it is not attention should be devoted to it. In all cases it should be ascertained that the urine is not retained. Acute cases require prompt action to relieve the system. The irrigation of the colon with a warm solution of magnesia sulphate, or the relief of the bowels by means of elaterium $1/10$ grain, or croton oil 1 to 2 drops, is of service.

The use of hot baths to start the perspiration and assist the skin in eliminating is of service. The vapor or hot bath or hot pack are of service. The hot pack is not as weakening as is the vapor or hot air bath. Pilocarpine may be employed subcutaneously in connection with the hot pack. A dose of $1/4$ of a grain is of service. It may be repeated in half an hour. It should be employed with great caution in the aged, and when the blood vessels show degeneration. An infusion of jaborandi leaves, one drachm to four ounces of water, when it is cool, is in some cases as serviceable as pilocarpine. Atropine $1/100$ of a grain hypodermically should be remembered, if there is pulmonary edema. A normal saline solution is of service in

the last stages of uremia. It may be administered either by the intravenous, subcutaneous, intra-muscular or rectal method. If the arterial tension is high glonoin 1/150 of a grain is of service. Should convulsions develop, inhalations of chloroform or chloral hydrate 15 to 30 grains by the mouth or rectum are of service. Inhalations of amyl nitrite, oxygen and nitrogen combined are useful in oppressed breathing.

Should coma develop purgatives, enemata, inhalations of oxygen, intravenous injections of a normal salt solution are of service, together with the use of veratrum viride, carbolic acid 3x or opium 3x. If vomiting is distressing the arsenite of copper, five drop doses of iodine 1x, kreasote 3x or a small amount of iced champagne together with the means already mentioned to assist in eliminating the poison from the system should be used. The headache is relieved by the general methods that have been mentioned together with glonoin, or nitrate of soda, two grains every three hours. The heart should receive such treatment as is required by the symptoms present when adonis vernalis, digitalis and arsenicum should be studied.

Cuprum ars.—This remedy is of service in uremic convulsions and produces nearly all features of uremic poisoning. It should be given in the second or third decimal.

Carbolic acid is indicated when there is headache, vertigo, clonic convulsions, coma, great languor, both mental and physical. There is a sensation of a band about the head. The urine shows albumin and is deficient in urea.

Veratrum viride should be studied in those cases in which fever is present and the arterial excitement is prominent.

Cantharis is indicated when there is headache, with delirium, coma and suppressed urine.

Arsenicum is indicated when there is uremia with great anxiety, restlessness, sinking of the vital forces, and a feeling of mental depression.

Caffeine should be remembered in cases of impending uremic coma, with depression of the heart, renal and respiratory functions. There is headache and drowsy. If the case is urgent it should be given hypodermically $\frac{1}{8}$ to $\frac{1}{2}$ of a grain.

Benzoic acid has been found clinically to be of great service in both acute and chronic uremia. The urine is of deep red color, has a strong urinous odor in which the odor of hippuric acid is apparent.

Echinacea angustifolia should be remembered in those cases which assume a typhoid condition as a result of the uremic toxemia.

The Nervous System

There is no system of the human organism that demands, for an intelligent interpretation of its disease, as definite a knowledge of its anatomy, physiology, histology and pathology as does the nervous system. It is beyond the scope of this treatise to enter into this subject as extensively as its importance demands. The author touches but a few of the land marks, and trusts the reader may utilize his texts, upon these important topics, to obtain a definite knowledge of neural anatomy and physiology, especially.

The family history, occupation, environment, and habits should be inquired into. Attention should be devoted to the subject of motion, whether it is normal or not. The patient should be asked to walk, and his gait noted carefully, to ascertain if it is normal or whether it is spastic or ataxic in character, or whether there is any paralysis or tremor present.

If there is paralysis it should be ascertained whether it is dependent upon a lesion of the brain, cord or peripheral nerves, or is hysterical or secondary to constitutional diseases. Tremors should be carefully noted, whether they are intentional, or non-intentional, coarse or fine. The subject of sensation should be investigated carefully; whether there is pain, real or assumed. The subject of anesthesia, hyperesthesia, parasthesia and the disturbance of special senses should be noted.

The reflexes should be carefully investigated, the pupil, the superficial reflexes of the skin, the deep reflexes of the muscles and tendons.

The electrical reactions should be studied, the contractions that occur if a faradic current is applied to a nerve or over a muscle, and similar contraction when the circuit is closed or broken by the galvanic current.

The question of speech and handwriting should receive attention. Aphasia, the scanning speech and many others as well as agraphia and the irregularities of the handwriting, all require careful consideration.

Trophic lesions about the joint are of great importance in an interpretation of these cases.

The physic function is of the greatest importance and should be considered with more attention than it has usually received.

The diagnosis of the cause of coma, whether the result of apoplexy, uremia, cerebral concussion or compression, hysteria, epilepsy and the effects of various toxic agents, should be thoroughly sought.

EXTERNAL PACHYMENINGITIS.

Definition.—This is an inflammation of the external surface of the dura-mater of the brain.

Etiology.—This results from necrosis of the bones of the cranium, as is observed in cases of mastoid and middle ear disease; also cases of necrosis from syphilis of the cranial bones and chronic inflammation of the nasal bone.

Symptoms.—These are not easily determined. During the early stages there is high fever, delirium, headache, convulsions and indications of increased intra-cranial pressure due to the inflammatory exudate. This may be of a purulent character, cause paralysis and may extend to the pia mater, giving rise to leptomeningitis.

Treatment.—This consists of early attention to the causative factors, and the early relief of the pressure by surgical means. While the mortality is high, this procedure holds out about the only hope. Syphilitic cases require the application of such remedies as are known to be of service as the *mercuries* and the *iodides*.

In inflammatory cases *aconite*, *belladonna* and *hepar sulph.* are of service, while in cases dependent upon caries of the vertebræ *calcareæ fluorica* and *silica* should be studied.

INTERNAL PACHYMENINGITIS.

Synonyms.—Hemorrhagic Pachymeningitis; Hematoma of the Dura Mater.

Definition.—This is an inflammation of the inner surface of the dura mater, attended by the formation of new tissue between it and the internal membrane, which has many blood vessels, the walls of which are easily ruptured.

Etiology.—It is rare. It is observed most frequently in males of middle life who are alcoholics. It may appear after an acute infectious disease, in cases of insanity, general paralysis, tuberculosis, syphilis or during cases of cardiac, pulmonary or renal diseases.

Pathology.—The process begins in the line of the middle meningeal artery as a condition of congestion. It extends from this point and forms layers of false membrane reticulated with dilated and tortuous blood vessels; the walls of which may rupture and give rise to hemorrhage, which may vary from a mere trace of blood to quite an extensive hemorrhage. The tissue and the extravasated blood may disintegrate. The blood vessels in the former may be obliterated, and the blood itself become decolorized and in time may be partly absorbed. Suppuration is a rare complication.

Symptoms.—These may be obscured by the co-existent disease. There may be severe headache, vomiting, muscular weakness and indications of cerebral

compression as manifested by convulsions, nystagmus, coma, stupor, neuritis and partial paralysis. Attacks simulating apoplexy may be observed as fresh hemorrhagic extravasations take place.

Prognosis.—This is decidedly unfavorable.

Treatment.—The patient should be kept quiet in a darkened room. The head should be elevated and an ice bag applied to it. The extremities should be kept warm. The diet should be liquid or semi-solid and nutritious. Rectal feeding may be found necessary. The bowels should receive careful attention that evacuations are sufficient. They should not be allowed to become constipated.

Such remedies as are indicated for the primary disease should be studied as the case advances; other remedies should be selected according to the complete symptomatology.

ACUTE CEREBRAL LEPTOMENINGITIS.

Definition.—This is an inflammation with exudation between the pia mater and arachnoid membrane.

Etiology.—This is most frequently observed in young children, and arises as an extension from an adjacent point of infection, as caries of the temporal bone, from middle ear disease, or diseases of the frontal, ethmoidal or the sphenoidal sinuses. It may develop from one of the acute infectious diseases or as a result of traumatism or exposure to cold.

Pathology.—The process may be localized or diffused. The exudate may be purulent, hemorrhagic or fibrinous in character. The micro-organism varies greatly in character. Streptococcus, staphylococcus, pneumococcus, gonococcus, bacillus typhosus and the bacillus coli communis are the most frequently exciting agents. The basilar portion of the brain is the most frequently involved. It may involve the convexity and may extend to the ventricles.

Symptoms.—There is generally a headache, complaint of which is frequently continuous and severe, as well as vertigo. Delirium is frequently present and may alternate with coma. There is hyperesthesia of nearly all of the senses. Vomiting is common in the cerebral form and is projectile in type. Should pus form, chills followed by a fever are present. The case then assumes a septic type. The temperature may be normal or sub-normal, but if taken in the rectum is

usually from 101° F. to 106° F. Bradycardia may be present. Convulsions may occur. There may be painful contractions of the muscles of the back of the neck. The abdomen is often retracted and there may be a general sensitiveness of the skin to the slightest touch. Strabismus, ptosis, optic neuritis and a variation of the size of the pupils may appear. Facial paralysis may appear as a result of involvement of the seventh nerve. Hemiplegia or monoplegia are common. The respirations are quickened, slight constipation is present. Herpes are present.

Diagnosis.—This is based upon the character of the fluid withdrawn by lumbar puncture. If the case is not tubercular the fluid is purulent, although cases that have a tubercular complication may show some pus.

Cytological and bacteriological examination throw further light upon the etiology of the complaint; any of the micro-organisms may be demonstrated. The cerebro-spinal fluid withdrawn during an inflammatory process of these membranes does not show sugar in a normal condition; it shows a small amount.

Prognosis.—This is unfavorable.

Treatment.—This consists in the prophylactic treatment of cranial injuries, the early operation and proper after treatment of other conditions. Rest in a darkened room is beneficial and the patient should be kept quiet. The bowels should be kept open. The head should be elevated. If the fever is high, sponging with cold water is of service. The application of

ice bags to the head is unnecessary, and is often cruel, as parts have been known to be frozen by this procedure in unconscious patients. It does not reduce the intra-cranial temperature or lessen the amount of blood flowing through the brain. Sponging the head with cool or warm water, or the application of quite hot water, frequently gives the patient more relief. The patient should be allowed to drink all the water he wants, if unconscious it should be given him. Little food should be allowed during the early period. Broths, meat juice, milk, malted milk, boiled rice and barley strained are of service.

Veratrum viride should be studied during the earlier stages. One-tenth of a drop to a dose usually meets the indication well, and should be continued till the symptoms requiring it are reduced.

Belladonna is often indicated by the general symptoms during the stage of acute congestion, when there is throbbing of the carotid and violent delirium.

When the temperature and pulse are reduced and the stage of effusion is approaching, *bryonia* should be studied.

The *iodides* are indicated when there is a syphilitic basis for the disease.

Apis mellifica is often of service when the effusion appears suddenly and the urine is scanty, and the "crise encephalique" is present.

Helleborus is a remedy that is of service and should be carefully studied during the period of effusion when the urine is scanty.

Cuprum arsenicum has rendered much service in relieving many of the symptoms of the stage of effusion when there are vomiting, cramps and muscular spasms.

Zinc phosphide has been of great service in cases of impending cerebral paralysis. The respirations are impeded, the pulse is weak and the extremities are cold.

Tuberculin should be compared in those cases presenting a tubercular history.

Stramonium.—This remedy should be compared with *belladonna*. The pulse is small and frequent. There is a tendency to tetanic stiffness of the muscles; the face is inclined to blanch. There is stertor and convulsions are brought on by the slightest touch.

Hyoscyamus should be compared with *belladonna*. The face and extremities are cold. The delirium takes the form of trying to escape. The patient scolds, raves, sings and picks at the bed clothing, or may be unconscious.

CHRONIC SPINAL LEPTOMENINGITIS.

This may be dependent upon an acute process that has become chronic, as the epidemic cerebro-spinal meningitis, syphilitic infection and chronic alcoholism.

The membranes become thickened and opaque, adhesions to the surface of adjacent structures are found. The walls of the blood vessels are thickened and syphilitic gummata may be present.

Symptoms.—These are often obscure. There is a chronic and obstinate stiffness of the limbs, occasionally accompanied with cramp-like pains with sensory and motor disturbances. If the lower portion of the cord is affected there will be vesical and rectal symptoms. Lumbar puncture shows an increased cerebro-spinal fluid.

Treatment.—The general health of the patient must be maintained; warm baths and massage are of service. The treatment adapted to the particular infection should be introduced.

TUBERCULOUS MENINGITIS.

Synonym.—Acute Hydrocephalus.

Definition.—This is an inflammation of the meninges due to an irritation produced by the bacillus tubercle.

Etiology.—This is most commonly observed in children of from two to ten years of age. The primary process is most frequently located at the base of the brain and in the sylvian fissure. In many of these cases there is a tuberculous family history, a poor hygienic surrounding, the presence of an approximate tubercular lesion. Certain infectious diseases may be the starting point.

Pathology.—There are tubercles frequently found on the pia mater of the base, the convexity in the ventricles, the choroid-plexus and in the spinal meninges. These are most common in the line of the smaller blood vessels, owing to the obliteration of the vessels by softening of the products of inflammation areas, if softening takes place. The arachnoid fluid is increased and this may be so increased in the ventricles in time that cerebral substance is compressed.

Symptoms.—During the early stages there is headache, mental irritability, dizziness, prostration, anorexia, loss of appetite, projectile vomiting and constipation. There is seldom any facial paralysis during the early stages. The symptoms may exist for several weeks before the true source of irritation appears.

This is indicated by an increase of all of the symptoms now present, the inequality of the pupils, photophobia, convulsions, delirium and paralysis. Following this stage there is the comatose stage with the evidence of cerebral compression, as a sharp cry during sleep.

Diagnosis.—Lumbar puncture is of great aid in arriving at a diagnosis. Sugar is likely to be present in the fluid, while in the other forms of meningitis its absence is the rule. Together with the findings in the fluid the general symptoms must all be considered. The tubercular reaction may be considered in these cases.

TUBERCULOUS MENINGITIS.

1. Sets in insidiously.
2. Appears secondary to tuberculous process in other parts of the body.
3. Symptoms indicate involvement of the base.
4. Tubercle may be found in the choroid.
5. Seldom recover.

CEREBRAL MENINGITIS.

1. Sets in rather acutely.
2. Appears secondary to other well known causes.
3. Symptoms indicate involvement of the convexity of the base.
4. Never found there.
5. May recover.

TUBERCULOUS MENINGITIS.

1. There is gradual loss of flesh for some weeks before development.
2. There is mental irritability and restlessness during sleep before development.
3. Bright light hurts the eyes.

TYPHOID FEVER.

1. Loss of flesh only after fever has developed.
2. Less irritable and sleep well before development.
3. Does not.

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|---|---|
| 4. No definite temperature curve. | 4. Curve is typical. |
| 5. No gastric reason for the vomiting. | 5. Worse towards evening. |
| 6. Headache and other symptoms at any time. | 6. Worse towards evening. |
| 7. As a rule, constipated. | 7. When developed diarrhea is the rule. |
| 8. No abdominal tenderness. | 8. There is abdominal tenderness. |
| 9. Spleen normal. | 9. Spleen enlarged. |
| 10. Abdomen retracted. | 10. Abdomen distended. |

Prognosis.—This is distinctly bad. Many of these cases die.

Treatment.—The patient should be kept quiet in a well ventilated, darkened room. The diet should be light and refreshing, milk broths and one of the prepared foods (as malted milk) is of service. It is well to have the head shaven. Cool applications may be applied, but with great care during the early stages, but cold should never be used after the stage of depression has appeared. The extremities should be kept warm with hot water bottles (avoid blistering) or hot flannels.

Iodoform should be remembered in these cases, internally. It has been employed locally in the form of an ointment. The head having been shaven, inunctions are used. Doses of from one grain of the pure, down to one grain of the 2x and 3x triturate tablets every hour will be found to be of more service.

Helleborus should be studied during the period when paralysis is appearing and a state of apathy is develop-

ing. The head is drawn back. There is stiffness of the cervical muscles. The skin of the forehead is contracted and covered with perspiration. The patient starts and screams during sleep. There is working of the jaws, the breathing is irregular and there is sighing. The head is bored into the pillow, and there is an anatomic motion of one arm and one leg.

Bryonia alba should be studied during the early stages when there are sharp, shooting pains in the head, and especially the temple; also later, when the disease is verging into that of depression with stupor, irregular pulse, cold moist skin and a dry brownish tongue. The child starts suddenly from sleep and screams.

Opium should be remembered when there is stupor and insensibility with stertorous breathing, dilated pupils, small, weak and irregular pulse and suppression of the urine.

Æthusa cynapium is given when there is constant nausea; the pupils are dilated and insensible to light. There is coma with cold skin, pale face and collapsed appearance, drawing of the head backwards.

Anacardium should be remembered in the sequelæ when there is total loss of memory, mental dullness and confusion, and incomplete paralysis of the voluntary muscles.

Tuberculin.—This agent should find an early place in the management of the case, first as a diagnostic agent, later as a therapeutic agent, when it should be administered carefully that the patient may not be kept in a negative phase.

Apis mellifica should be studied in those cases in which there is a constant motion of an arm or leg. The urine is scanty and suppressed. The stools are involuntary. The pulse is irregular and one side of the body is paralyzed.

Calcareo carbonica.—When this remedy is indicated the child should be recognized by the large head with swollen abdomen, and irregular bowels inclined to looseness, profuse perspiration during sleep. The child screams out unexpectedly without cause. *Calcareo phosphorica* is indicated in greatly emaciated patients, dentition is retarded, stools loose and green.

CHRONIC HYDROCEPHALUS.

Definition.—This is a condition in which there is a gradual increase of the serous fluid in the ventricles or subarachnoid spaces of the brain, that results in a gradual enlargement of the head.

Etiology.—It may be acquired or congenital. The acquired form is usually dependent upon some form of mechanical disturbance. The cause of the congenital form is not known. Parental alcoholism, plumbism, syphilis, malnutrition and unhygienic surroundings are considered as predisposing. Upon examination of the parturient woman the head is felt to be greatly enlarged. The bones of the skull are thin, the fontanelles and sutures are large, and the bones widely separated and fluctuation may be detected before delivery. The ventricles of the brain are distended with fluid, which is of a clear color.

Pathology.—The serous exudate is retained in the ventricles of the brain as a result of congenital or inflammatory obstruction of the aqueduct of Sylvius, or of the foramen of Megendie and the lateral foramina. As a consequence, there is a gradual increase of the fluid, which results in a distension and thinning of the cerebral cortex, till it may be but half an inch or less in thickness. Frequently the fourth ventricle is alone distended.

There may be a tumor at the base of the brain, giving rise to engorgement of the ventricular plexus of veins.

Symptoms.—In congenital cases the size of the head may be so great that craniotomy and destruction of the child is demanded that delivery may take place. When the disease appears following birth, there is a gradual increase in the size of the head. The fontanelles bulge and the sutures spread. The frontal and occipital regions bulge, and the presence of fluid may be detected by palpation. As the condition becomes more pronounced mental symptoms appear, the child is easily irritated, and both physical and mental growth are delayed. There is no corresponding enlargement of the face. The child may not learn to walk or talk. In the more severe cases the intracranial pressure is such that optic atrophy and strabismus develop. Vomiting, convulsions and coma may develop, and death results from exhaustion or some intercurrent disease. Apart from the enlarged head and symptoms already enumerated there is usually headache with dimness of the vision and an irregular gait. The pulse is usually slow. The disease may continue for several years. In milder cases the derangements cease, the sutures and fontanelles close, and the physical and mental condition take on a normal state. Chronic hydrocephalus occurring later in life has no definite symptoms and is as a result difficult to recognize.

Diagnosis.—This condition should be distinguished from rachitis.

HYDROCEPHALUS.

1. The head is enlarged and globular in shape.
2. The long bones and the costal extremities are practically normal.

RACHITIS.

1. The head is square with a bulging forehead.
2. The long bones and the costal extremities show characteristic changes.

Hydrocephaloid following infantile diarrhea should be remembered when the child is in a semi-comatose condition; the posterior cervical muscles are tense and the head is retracted. The condition is probably the result of a loss of fluid from the presence of diarrhea and an auto-intoxication.

Prognosis.—Death usually occurs within a year following the development of this condition. Occasionally a case lives for a few years, but the mentality is low. In a very small percentage of cases life may be continued. The brain tissue may not have been injured to a great extent, and the mentality may be but little below normal and life may be continued to old age.

Treatment.—This is not satisfactory. The management of these cases with any degree of success is difficult. The general health of the child should receive careful attention. The symptoms should be met as they arise. The nourishment of the child should be good. The hygienic surroundings should be made perfect. If rachitis complicates the case attention should be given this. If it is of syphilitic origin such treatments as meet this condition should be employed. The diet in these cases in which the nutrition is low and the digestion faulty is an all important one. If

the mother is healthy she should nurse the child; if she is not, a wet nurse should be procured. The milk from a healthy cow is the next best supply. Milk or other foods that cause pain, distress or nausea or pass the bowels undigested should be stopped at once and another food tried. A well boiled and strained oat meal gruel is often tolerated when other foods are not. As the child becomes older one or more of the breakfast cereals is often well borne, as is meat broth. The latter should not be employed constantly or it will disturb the digestion.

Cold applications should be applied to the head if the process is active. The compression of the head by bandages and adhesive straps has been extensively employed without any definite benefit. Strapping with adhesive straps causes intolerable pain and, by increasing the internal pressure, injures the brain. Elastic bandages are to be preferred. If adhesive straps are used they should be removed if symptoms of pressure appear. Puncture and the evacuation of a part of the fluid has been resorted to frequently with but temporary benefit, and in some cases has been followed by death. There is danger of a traumatic meningitis following this operation. The opening is usually made at the outer angle of the anterior fontanelle. But a small quantity of the fluid is removed at a time and pressure applied. Some have advocated the lumbar puncture.

Many of the city cases show an improvement when sent to the country. They must be protected from flies and mosquitoes. As these cases should not be bathed too frequently, a rub with oil is often helpful.

Stimulants of all forms should be avoided, as they are injurious in the end.

In selecting a remedy the underlying constitutional condition should be considered rather than the present symptoms.

If there is a history of constitutional syphilis, *syp-
hilinum* should be studied.

Tuberculin should be compared in other cases.

The remedies that have influenced the cases are *Cal-
careea phosphorica*, *Calcarea carbonic.*, *Arsenicum*, *Fer-
rum phosphoricum*, *Sulphur*, *Zincum*, *Apis mellifica*,
Helleborus, *Psorinum*.

SPINAL MENINGITIS.

Definition.—This an inflammation of the meninges of the spinal cord.

Etiology.—It may develop as the result of exposure to cold, from traumatism, the extension of an infection from the cerebral meninges, from tuberculosis, and from an acute infectious disease and epidemic cerebro-spinal meningitis.

Pathology.—During the early stages the membrane presents a hyperemic swollen condition, which is followed by an exudate of a serous or purulent fluid. The membranes are infiltrated with round cells and adhesions, and thickening occurs. Finally areas of sclerosis develop.

Symptoms.—These usually begin with a chill, which is followed by a rise of temperature, headache, malaise and pains, which are referred to the back and the extremities. The pain is made worse from motion. There is sensitiveness of the spinal nerves with stiffness of the spine and muscular rigidity. Kernig's sign is present. During the early stages the reflexes are exaggerated, while later they are reduced or lost. Rectal and vesical disturbances are common and bed sores develop, especially if there is much disturbance of the trophic centers. Death may take place in these cases in from a few days to a few weeks, dependent upon the involvement of an important nerve center. In mild cases recovery may take place, but in the majority of

cases in which the patient survives there is either a motor, sensory or trophic involvement. In some cases all of them are present.

Lumbar puncture shows an increased amount of cerebro-spinal fluid. If it is greatly increased in amount it will pass through the needle in a stream; if there is but a slight increase it will but drop. A bacteriological examination of the fluid shows the type of infection present.

Prognosis.—If it has developed secondarily to one of the infectious cases the patient may recover. Cases dependent upon a tubercular infection are usually fatal.

Treatment.—This depends upon the cause. If dependent upon a syphilitic infection, agents directed to the control of this are indicated. The pain will require attention in many cases. Hydrotherapy and the application of a mild current of electricity are beneficial.

Should it be dependent upon tubercular destruction of the bone, surgical treatment should be instituted. This should be followed by a diet and such treatment as will assist in overcoming the condition.

Aconite.—The fever is high, with boring pains in the spine, increased on motion, painful stiffness in the dorsal region, extending to the neck, with numbness extending from the small of the back into the lower limbs; formication in the arms; insensibility and coldness of the hands and feet; the arms hang powerless as if paralyzed.

Belladonna.—When this remedy is indicated there are lancinating pains in the vertebræ and tonic mus-

cular contractions; cramp-like pain in the middle of the spinal column; painful stiffness in the back of the neck and intense dyspnea as if the chest were violently compressed; complete or incomplete paralysis, with or without incontinence of urine.

Stramonium.—This remedy should be studied when there is constant pain in cervical and upper dorsal regions of the spine, which is sensitive to the touch; sudden jerks through the body; tonic spasms, with consciousness unaffected; the muscles will not obey the will and there are trembling contractions.

Hypericum.—There is often a history of traumatism when this remedy is indicated. There is fever, with wild, staring looks; hot, bloated face; thirst and white-coated tongue; painfulness of the back from injury to the spine, greatly increased by any movement of the body; the slightest movement of the spine extorts cries; the cervical vertebræ sensitive to the touch; spells of short, hacking cough and difficult breathing, with desire for warm drinks.

Bryonia.—When this is indicated there are sticking pains in the back on the slightest movement of the spine. It promotes absorption of serous effusion and thus relieves paralysis from compression; sticking pains in the chest, with fever.

Nux vomica.—When this is indicated the general symptoms requiring the remedy are present. There are violent pains in the back, especially in the dorsal and lumbar regions; pains extending from the back to the sternum, producing shortness of breath; pains ag-

gravated by movement; hypochondriac and epigastric regions sensitive to pressure, with numbness and weakness of the arms and legs, retention of urine and constipation.

Cuprum is indicated when there is suffocative breathing from spasm of the respiratory muscles; rigidity with painful contractions of the limbs, toes and fingers; excessive weakness, especially in the lower extremities, and painful jerking in various parts of the body and limbs; paralysis, with incontinence of urine.

Plumbum should be remembered in chronic cases, attended with frequent attacks of violent colic, with retraction of the abdominal walls; the paralyzed parts greatly emaciated; limbs become painfully contracted, and there is coldness and paralysis of all the limbs, especially of the lower, with extreme constipation.

Rhus toxicodendron is indicated when there is high fever from getting wet or from repression of an exanthem; numbness and loss of sensibility and power of motion in the limbs, with formication, dyspnea and inflammation following concussion of the spine.

Cicuta virosa.—When this is indicated there are violent spasmodic pains in the paralyzed lower limbs, with trembling of the limbs during remission; painful stiffness in the muscles, and frequent involuntary jerking and twitching in the limbs, followed by paralysis; feeling of soreness in many parts of the body.

Kali hydriodicum is used when there is a history of syphilis and constant violent pain in the small of the back, and spasmodic contraction of the muscles: fever,

with excessive thirst; burning sensation at the pit of the stomach; great desire to go into the open air, and paralysis of the lower extremities.

MENINGEAL SPINAL APOPLEXY.

Synonyms.—Hemorrhage into the Spinal Membranes. Hematorrhachis.

Etiology.—This may be the result of traumatism, syphilis, endarteritis, infective disease, rupture of an aneurysm of the basilar or vertebral artery. It may be associated with convulsions, as tetanus, epilepsy and strychnine poisoning.

Pathology.—The blood may be either without the dura (extra meningeal) or between the dura and the pia-mater (intra meningeal). The blood may be derived either from a rupture of the local veins, or the results of traumatism when it passes downward from the cranial cavity.

Symptoms.—There may be no symptoms, but the most definite are sudden and severe pain in the back with cutting-like pains along the nerves, together with an unduly sensitive condition of the skin and muscles and a sensation of anesthesia. There are also reflex and muscular spasms. The pains are greatly aggravated by motion. There may be slight motor weakness. The symptoms differ with the location of the extravasation, cervical hemorrhages being evidenced by pain or anesthesia in the neck and arms, which may be followed by paralysis. There may be difficulty in respiration and deglutition and pupillary disturbances. Hemorrhage in the dorsal region is indicated by pains in the back, thorax and abdomen; it may be followed

by paraplegia. The reflexes usually remain normal. If the hemorrhage is in the lumbar region the pain and paralysis affect the legs, there are rectal and vesical disturbances and the reflexes are lost. If the hemorrhage is extensive death may result. If it is small it may be absorbed, the symptoms disappearing as the absorption takes place. In other cases the patient may live but the paralytic symptoms remain. Cervical hemorrhages are the most serious on account of the medulla being involved.

Diagnosis.—This depends upon the combination of pain with symptoms of nerve-root irritation without fever.

MENINGEAL APOPLEXY.

1. The onset is sudden.
2. No rise of temperature early and only when meningitis sets in.

SPINAL MENINGITIS.

1. The onset is gradual.
2. The rise of the temperature is early.

Prognosis.—It is graver in those cases that involve the cervical region, in which the respiratory embarrassment is most pronounced. Paralytic and spastic symptoms may last for months and then completely clear up.

Treatment.—Following the hemorrhage the patient should be kept quiet in bed, resting upon his face or side, that the blood may not gather along the posterior columns of the cord. The bowels should be kept freely open. The application of ice bags along the spine is of more service than leeches or counter-irritation. The nervous and circulatory disturbances should be con-

trolled by such remedies as are indicated. In many cases *aconite* is of service during the early stages when the patient is restless and fearful, and there is an accelerated circulation.

Arnica should be studied in those cases that are dependent upon traumatism; also later when absorption of the blood is slow.

Secale cornutum should be thought of when the hemorrhage continues. There is violent pain in the region of the spine, and pressure on the affected portion causes extreme pain.

Belladonna should be studied, in full blooded plethoric subjects, when there is throbbing of the carotids and dilated pupils, and the general symptoms of the remedy are present.

Hypericum should be studied in those cases where there has been a history of traumatism.

Hamamelis should be thought of in venous subjects, in those who suffer from hemorrhoids or other indication of weakness of the veins.

Hydrangea and *ippecac* may be indicated in certain cases.

As the case advances the *iodides*, *hydriodic acid*, the *mercuries* and *sulphur* should be studied.

Massage, electricity and hydro-therapeutics administered by one who understands the case, are often beneficial.

If the hemorrhage is extensive and a large clot is present surgical procedure should be considered.

EMBOLISM AND THROMBOSIS OF THE CEREBRAL ARTERIES.

Synonym.—Acute Cerebral Softening.

Definition.—An embolism is the closing of a blood vessel by a vegetation or clot that is brought in the blood current. A thrombosis is the stoppage of the blood current by a clot developed at the point of stoppage.

Etiology.—Embolism is more common in females and children, while thrombosis is more common in males and those past middle life. Chronic valvular heart lesions, endarteritis, aneurism, blood diseases, pregnancy and acute infectious diseases are the predisposing causes of embolism. The embolus usually passes through the left carotid artery to the internal carotid artery and the left middle cerebral artery.

Thrombosis is favored by arteritis, blood dyscrasia, carotid ligation and weak fatty heart. Its most common site of development is the middle cerebral, the vertebral, the posterior cerebral artery or one of the branches of the circle of Willis.

Pathology.—When the blood supply is cut off from a part, anemia, degeneration and softening follow. This is gradually absorbed and a scar or cyst remains. If the embolus is septic in character an abscess is the usual result. The artery in case of thrombosis shows endarteritis. Owing to the pressure within the blood vessel the latter may rupture.

Symptoms.—Those of embolism simulate cerebral apoplexy. There is loss of consciousness, disturbed pulse and respiration and hemiplegia. The trouble is usually upon the left side of the brain. There is a disease of the heart or other conditions that favor embolism.

In thrombosis the onset is slow and there is usually a history of headache and drowsiness. Hemiplegia develops gradually, and palsy of the ocular and other cranial nerves develops.

CEREBRAL EMBOLISM.

1. Is a disease of early life.
2. Is associated with valvular disease of the heart.
3. Consciousness may not be lost.
4. Produces epileptiform convulsions, localized palsies and aphasia.
5. Local and general symptoms not as pronounced.
6. Emboli may be detected in other organs.

CEREBRAL HEMORRHAGE.

1. Of advanced life.
2. Is associated with diseases of blood vessels.
3. It is usually lost.
4. Is often attended with convulsions and hemiplegia.
5. More pronounced.
6. Not so.

CEREBRAL THROMBOSIS.

1. It is a disease of middle life.
2. Symptoms appear slowly and there are prodromata of headache, delirium and at times convulsions.
3. If convulsions appear they are localized or unilateral.
4. Thrombosis develops during periods of depression.

CEREBRAL HEMORRHAGE.

1. Of old age.
2. They develop suddenly and attended with loss of consciousness.
3. If present they are usually general.
4. Appears during excitement.

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| 5. Develops when vascular tension is low. | 5. When vascular tension is high. |
| 6. Symptoms not profound or extensive. | 6. More profound and extensive. |
| 7. Convulsions may recur. | 7. Seldom recur. |

Prognosis.—Complete recovery from the paralysis seldom occurs. Embolism that is septic in character is unfavorable.

Treatment.—The patient should be placed in bed and kept quiet, with the head elevated, and the case managed in many particulars similar to one of cerebral hemorrhage. Means should be directed to keep the heart, kidneys and bowels functioning normally. The diet should be liquid or semi-solid in character and non-stimulating. Remedies may be required to maintain the heart's action when *spartein*, *strophanthus*, *convallaria* and *digitalis* should be studied. They should not be administered in such doses as will cause a rupture of a blood vessel.

HEMORRHAGE INTO THE MEDULLA AND PONS.

Etiology. —This is dependent upon the same causes that produce cerebral hemorrhage: degeneration of the walls of the blood vessels, miliary aneurism, meningitis, syringomyelia and traumatism.

Symptoms.—Owing to the interference with the cardiac and respiratory nerve centers, death frequently occurs in a few seconds or minutes. In other cases convulsions appear and consciousness is lost. The convulsions appear early and are usually epileptiform in character. In some cases the legs are the only parts of the body affected. Bilateral paralysis is the rule, but hemiplegia is occasionally met with. The pupil is usually contracted, but in rare instances is dilated. Nausea and vomiting is usual. The temperature is high, 104° F. to 106° F. The respiration assumes a Cheyne-Stokes type early in the case.

Prognosis.—This is usually fatal, but in rare instances recovery takes place but recurrence is common.

Treatment.—This is similar to that of cerebral hemorrhage.

TUMORS OF THE SPINAL CORD.

These arise either from the membrane or from the cord substance. Those arising from the cord substance are generally primary. As a rule, there is but one tumor, but they have been found multiple in a few cases. Trauma has been noted in the production of new growths. Nearly all forms of growth have been noted in this location.

Symptoms.—The symptoms are those of local irritation and compression. During the early stages the pain is local and is associated with stiffness, while later atrophic paralysis, associated with anesthesia or hyperesthesia, appears. Paralysis of the sphincters and paraplegia are late symptoms.

Prognosis.—This is unfavorable except in the case of gummata.

Treatment.—In certain cases surgical interference is of service. Cases that are the result of syphilis are greatly benefited by medicinal treatment.

APHASIA.

Synonyms.—Aphemia: Loss of the Faculty of Speech.

Definition.—This is a defect or a loss of the power to speak or to write words. It may be either sensory or motor, according as the patient has lost the power of remembering or speaking the word. The disturbance may be either in the receptive or emissive center.

Symptoms.—Sensory aphasia is a general term that embraces word blindness, word deafness and amnesic aphasia.

Word blindness is applied when the patient cannot recollect the appearance of a word. He may be able to pronounce it if repeated to him, he may be able to copy and take the word in dictation, but he is not able to recognize it when written or printed.

Motor aphasia may co-exist. The left angular and supra-marginal convolutions are the parts usually affected.

Word deafness is present when the meaning of certain words is lost, otherwise the hearing is perfect.

Amnesic aphasia is present when the patient cannot remember a word or words. If the word or words are pronounced he recognizes them.

Agraphia is present when the patient cannot write a word, as he is unable to remember it.

Motor or ataxic aphasia is present when the patient knows the word, but is unable to speak it; neither is he able if it is repeated to him.

Pathology.—The cerebral disturbance is in the third left frontal convolution of the brain (the island of Reil). If the patient is left-handed the lesion will be upon the right side of the body. There is usually a temporary or permanent lesion of the middle cerebral artery.

Treatment.—These cases should be treated symptomatically. Much has been accomplished by educating the patient in the use of the speech center on the opposite side of the brain. No doubt but in a large percentage of these cases that a condition of irritation or congestion is present and not an organic lesion. Under the carefully selected remedy many of these cases improve.

Surgical methods must be introduced in case of tumor, abscess, etc.

In the selection of a remedial agent the general symptoms of the patient must be considered.

Arnica montana.—This remedy should be studied in case of aphasia following injury.

Glonoïn.—This remedy should be remembered when there is an acute congestion of the brain.

DISEASES OF THE OPTIC NERVE.

Etiology.—This nerve may be injured by tumors, hemorrhages, meningitis and syphilitic lesions.

Optic neuritis is a serious condition, resulting as it does from cerebral abscess or tumors.

Symptoms.—These depend upon the part or amount of the nerve involved. Blindness results if optic neuritis is complete. Atrophy of the optic nerve is detected by taking the field of vision, and later by means of the ophthalmoscope. If the injury is partial, it will be indicated by a narrowing of the field of vision. If the optic chiasm is destroyed, the sight in both eyes and the pupil reflexes to light will be lost. A lesion between the optic chiasm and the optic center is attended with hemianopsia. These lesions, if dependent upon syphilis, are amenable to treatment, while others are not.

DISEASES OF THE OLFACTORY NERVE.

Of these anosmia, or loss of the sense of smell, is the most common.

Etiology.—The olfactory bulb may be affected by syphilitic lesions, or tumors, or may be injured in other ways. Catarrhal conditions also cause the disease.

Treatment.—A catarrhal condition requires such remedies as may be indicated.

If traumatism is the cause, *arnica* and *hypericum* should be studied, while syphilis will require a study of the *mercuries*, *aurum*, *hepar* and the *iodides*. Tumors and polypi require the attention of the surgeon.

DISEASE OF THE PNEUMOGASTRIC NERVE.

This nerve may be paralyzed from injury within the skull, by morbid growths, meningitis or aneurisms. Outside of the skull, surgical operations and pressure from tumors are the cause of paralysis.

Symptoms.—When the nerve is divided the heart's action is increased, while the respirations are slowed and more pronounced. There is difficulty in swallowing and vomiting is frequent. The vocal cords are frequently paralyzed.

The treatment of these cases is symptomatic.

DISEASE OF THE AUDITORY NERVE.

Affections of this nerve are indicated by impairment of hearing and complete deafness. The condition may be acute or chronic. It may depend upon an inflammation of the tympanum, syphilis or degeneration in the aged. It may be caused by tumors and meningitis; atrophy may occur in cases of tabes dorsalis.

MENIERE'S DISEASE.

Synonyms.—Labyrinthine Vertigo. Aural Vertigo.

Definition.—This is a disease of the internal ear characterized by vertigo, tinnitus aurium, deafness, nausea and vomiting.

Etiology.—It usually appears after the thirtieth year of age, and in males more frequently than in females. Syphilis, gout, changes due to old age, hemorrhages into the middle ear and gastric disturbances have caused certain cases.

Pathology.—There is a disturbance of the function of the peripheral and central portions of the vestibular nerve and of the organs in relation to it.

Symptoms.—Vertigo is in many cases the most severe symptom; with this there is nausea, vomiting, tinnitus aurium, deafness, and at times diplopia and nystagmus may appear.

AURAL VERTIGO.

1. There is no muscular spasm or loss of consciousness.
2. There is usually some dizziness between the paroxysms.
3. There is impaired hearing and tinnitus aurium.

EPILEPSY.

1. There is muscular spasm and loss of consciousness.
2. There is no symptom between the attacks.
3. Not present.

Treatment.—The underlying cause must be considered in all cases. The patient should be kept at rest in bed. *Quinine* 2x has been of service in certain cases, as have *salicylic acid*, *thiosinamin* 6x and *gelsemium* in others.

NEURALGIA.

Definition.—This is a nerve pain confined to the course of a nerve. There are no trophic or motor changes noticeable. The pain appears in paroxysms and is described variously as gnawing, burning and crushing.

Etiology.—This is a disease of middle life; it is rare in children. It is more frequent in women than in men. The pain is frequently worse at night. There are certain points in the course of the nerve, tender points of Valleix, that are particularly sensitive to pressure. They are situated where the nerve is superficial, rests upon a bone, bifurcates or where a branch comes to the surface. A cutaneous sensibility is observed where a diseased portion of nerve comes to the surface.

In some cases there is a history of rheumatism, traumatism or toxic causes obtainable. The pain may be reflex, dependent upon irritation in a distant organ. The sciatic and trigeminus nerves, owing to their superficial course, are readily exposed to injury. The infectious form should be remembered in malaria as the "brow ague." Of the other toxic causes syphilis, uremia, gout and diabetes should be remembered. Patients undergoing severe mental worry and strain, fatigue, exposure to cold or prolonged drainage of vital fluids, will in time be neuralgic subjects as a result of a lowering of the tone of the nervous system.

Many prolonged diseases that sooner or later affect the composition of the blood will produce neuralgic pain, as gout, rheumatism, diabetes, chronic alcoholism and arthritis. Digestive disturbances resulting from irritating foods and intestinal auto-intoxication in time produce neuralgic pains.

Pathology.—There are no definite changes, and there may be vaso-motor, secretory or trophic disturbances in some cases.

Symptoms.—There is pain in the course of a nerve without neuritis. The pain appears in paroxysms at intervals; there is some sensitiveness, worse at certain points along its course. The patient is usually of the nervous, debilitated, pale, anæmic type.

Diagnosis.—This is based upon the facts that the pain is unilateral and confined to the part supplied by a certain nerve. The pain is paroxysmal in character.

NEURALGIA.

1. The pain is intermittent and paroxysmal.
2. There are certain tender points. "Points douloureux of Valleix."
3. It is confined to nerves of sensation.
4. There may be no muscular weakness, wasting and alteration in the electric reaction.

NEURITIS.

1. The pain is continuous.
2. There is tenderness along the course of the nerve with swelling.
3. It is not confined to nerves of sensation.
4. This is the rule.

Prognosis.—This depends upon the curability of the causes that are active.

Treatment.—This depends on the cause, whether

local or constitutional, and whether it is amenable to treatment. In certain cases rest, combined with a nourishing diet and proper hygiene, is of great importance in the permanent relief of the difficulty and in restoring the proper function of the nerve.

In connection with proper diet, examination of the urine for phosphaturia, sugar, uric acid or other abnormal ingredients should be made. Anæmic subjects should receive a diet that will assist in overcoming such a condition. Constipation should be corrected by outdoor exercise, a regulation of the habits and a diet rich in fats and oils, as cream, butter, bacon, fat meats, salad oil and cod liver oil. Many patients at first complain of fats. By tact on the part of the physician this can be overcome. Milk, egg-nog with an excess of cream in the milk, beef and other rich broths are excellent articles of diet. Tea and coffee should be taken in moderation. Alcohol should be restricted even if the subject is used to it. Pastry, sweets, grid-dle cakes, condiments, fried foods, rich and highly seasoned sauces and foods should be withheld. The meals should be taken at the regular hours.

Local applications may be demanded and are frequently a choice of evils. A hot water bag, hot hop bag and Japanese fire-box are good palliatives.

Aconite is useful, especially in neuralgia of the fifth nerve. It may be applied in the form of an ointment or as a tincture and should be painted over the affected area. It may be used in the form of a solution or of an oleate, and a small portion well rubbed over the course of the nerve.

Electricity.—The galvanic form, with the positive current over the sensitive point and the negative over the spine, is helpful, but the current should not be too strong. From 5 to 20 milliamperes will suffice.

Mezereum.—This remedy is of service in many cases when there are shooting pains which radiate from below the eye. There are frequently decayed teeth and neuralgia of the cheek bone, and there is a sensitiveness of the tissue, herpes zoster and ciliary neuralgia.

Spigelia.—This remedy should be studied when the left side of the face is especially involved. The face is pale, the pains are shooting in character and involve the eye in particular. The pains are apt to begin in the morning in the base of the head and extend up over the head as the day advances ("Sun Neuralgia"). The pains are relieved by firm pressure.

Magnesia phosphorica should be remembered in tired, exhausted, neurotic subjects when the pains are paroxysmal in character, changing about, and are relieved by heat, pressure and friction. They are worse in cold weather, at night and are accompanied by spasmodic muscular contraction. It has been found that if this remedy is dissolved in hot water and given hot its action is enhanced.

Belladonna.—This remedy is indicated in patients of a bilious, plethoric constitution who are extremely sensitive to drafts. The pains come suddenly, remain a time and go as suddenly. The face is red, the conjunctiva congested, the eyes are staring and the pupils dilated. The pains are relieved by pressure and are

made worse by light, noise or drafts of air. The alkaloid *atropin* should be compared, as it is often of service.

Aconitum napellus should be studied in those cases that are induced by exposure to cold or by the checking of a perspiration. The pains are severe and there is a sensation of numbness of the affected parts as though from a defective circulation.

Bryonia alba.—This is indicated in trigeminal neuralgia of the left side. The pain is acute, the motion necessary to speak or eat aggravates it to such an extent as to provoke a free flow of tears. There is severe pain in the right side of the head, face and jaws which is worse in the morning, occurring during pregnancy.

Kalmia latifolia should be studied in rheumatic subjects who are distressed with neuralgia of the facial nerve. There are sharp, shooting and twitching pains, commencing in the neck, going to the top of the head, then to the temples and right side of the face. The pains are relieved by cold and aggravated by heat.

Arsenicum album is used in exhausted subjects who suffer from neuralgia of the fifth nerve. There are acute violent attacks of tearing, burning pain, occurring every five minutes both day and night, in the second branch of the trigeminus. It is useful in chronic lumbago-abdominal neuralgia.

Rhododendron should be studied in the case of those who dread the approach of a storm and are afraid of thunder. There is violent prosopalgia, spreading over

the right side from the teeth and radiating over the mouth, eye and ear; equally violent day and night. The pains are drawing, tearing, jerking in character, ameliorated by warmth, when eating and for some time afterwards.

Lachesis.—The pain is dull, heavy and severe, commencing at 9 A. M. in the inner canthus of the right eye and extending outward and upward above the superciliary ridge, passing off in the afternoon. The skin is extremely sensitive to touch. The patient is worse after sleeping.

Iris versicolor.—The patients are afflicted with periodic sick headaches and suffer from trifacial neuralgia in the left temporal region, that extends down the ramus of the lower jaw into the teeth. The pain is sharp and cutting.

Sabina.—This is suited to the woman who is continually threatened with abortion and is losing large quantities of blood. There is a facial neuralgia that occurs one week prior to menstruation, accompanied by frequent shudderings, burning heat in the whole body and great nervous irritability.

Natrum muriaticum.—The patients suffer from facial neuralgia of a malarial origin. Pains begin about 8 P. M. in the region of the right eye, the right side of the nose and the right frontal region, accompanied by high fever, great thirst and some nausea, and subside with abatement of the fever, returning again the next morning.

Veratrum album should be studied when the patients

suffer with neuralgia of the right upper lid. The pain is greatly aggravated by pressure upon the parts; the most delicate touch causes a sensation as if hundreds of needle points were penetrating the cuticle of the lid. There are colic-like abdominal pains, followed by diarrhoea.

Zincum phosphoricum should be studied for those who are prematurely old and complain of debility; there is general neuralgia, depending on nervous debility with neurotic constitution, loss of memory and loss of sleep from continued mental anxiety.

Ammonium picricum.—There is vertigo with violent boring pain in the right side of the head, spreading to the supraorbital and superior maxillary regions, intermittent, commencing at 10 A. M., increasing till 2 P. M. and disappearing about 9 P. M.

Gelsemium.—Patient has headache of the neuralgic type. There is severe orbital neuralgia, occurring frequently and accompanied by heaviness and drooping of the upper eyelids and great muscular weakness. There are severe paroxysms of right facial neuralgia, lasting six months, or neuralgia of the anterior crural nerve, pain extending up to the iliac crest and down to the inner side of the knee, accompanied by tenderness between these points.

Pulsatilla.—She is vacillating and has severe headaches. The pain is disproportionate to the symptoms and often due to disease of the genital organs, such as amenorrhœa, dysmenorrhœa, ovaralgia, etc. There are choreic movements occurring in young girls at or near puberty.

Zincum valerianicum is indicated in neuralgic pain of the facial nerve. The pains are intense, piercing and stabbing in character. The patient screams and pulls her hair and is insane from the pain. The health becomes impaired and she presents a cadaverous appearance.

Niccolum and its combinations should be studied in severe cases.

TRIGEMINAL NEURALGIA.

Synonyms.—Prosopalgia; Tic Douloureux.

Etiology.—This nerve is a common seat of neuralgia due to exposure of the various branches to cold air, drafts and rain. The supra-orbital branch is frequently affected with malaria, while influenza, syphilis and typhoid fever may each be the cause of the disease in certain cases. Mercury, lead, iodine, gout and diabetes may each be causative. Traumatism may be the cause as well as pressure.

Symptoms.—This form of neuralgia is usually unilateral. The pain may change from side to side; seldom are all the three branches of the nerve involved at the same time. There may be prodromata of coldness, stiffness, or a sensation of crawling. In other cases there are none. The pains may be described as burning, boring or crushing in character. It is impossible to estimate the duration of an attack.

Vasomotor disturbances are at first indicated by arterial spasms when there is pallor of the skin and soon vascular dilation. There may be secretory disturbances, increasing the secretion of tears, of the nasal mucus, of saliva and of the perspiration.

The supra-orbital branch of the nerve is the one most frequently affected. Then the pain extends from the supra-orbital foramen to the hair. When the second branch is involved the pain extends from the infra-orbital nerve, affecting the gums, upper teeth and lips.

If it is confined to the third branch the pain will be in the lower jaw.

Trophic changes are not usual; a review of the distribution of the nerve should readily show the branch involved.

Diagnosis.—This should be based upon the general symptoms of neuralgia and the causative factor as well.

Prognosis.—This depends upon the curability of the causative factor.

Treatment.—This depends upon the cause and its amenability to treatment. The various causes of the pain must be sought out and investigated, as irritation from the teeth, nasal fossæ or eyes. It should be seen that no toxæmia is working, as typhoid fever or influenza. In some cases the application of warmth brings relief, while in others it is cold. Anodynes should if possible be avoided. Morphia sulph., $\frac{1}{8}$ to $\frac{1}{4}$ grains; cocain, 4 per cent. locally, are those most extensively employed.

Galvanic electricity is sometimes beneficial. The positive pole should be applied to the painful points.

A solution of *aconite*, one gram to the ounce, painted over the surface, may be of service. It should be applied mildly at first, once a day for about ten minutes. Nerve stretching may be of service in some cases.

Mezereum should be studied when the pains appear suddenly on moving the jaws, especially on eating hot things. There is stiffness of the muscles of the neck;

the pain is aggravated by the lightest touch, but diminished by hard pressure, and may affect any or all of the trifacial branches.

Aconitum.—There is a history of exposure to the cold and there are lancinating and burning pains, accompanied by painful tingling and pricking, redness of the affected parts and restlessness. The pains are sometimes relieved by strong friction, but aggravated by motion.

Arsenicum album should be remembered in weak, debilitated subjects when there are severe burning pains, as if made with hot needles; pains appear toward night and reach their greatest intensity near midnight; the anguish is sometimes so great as to compel the patient to get up and walk about. They are aggravated by noise and motion, also by cold water, which at first relieves; ameliorated by hot applications.

Spigelia.—The left side is most affected and the pains extend to the eyes, which are more or less injected, and seem to be compressed in the orbit; pains aggravated by the slightest touch or movement.

Zincum.—The patient complains of lightning pains, with muscular twitchings, affecting any or all three branches of the nerve; eyes appear sunken, eyelids bluish, face pale, tongue congested; pain is increased by pressure.

Belladonna.—Subjects are full-blooded and plethoric; there are cutting, throbbing pains frequently extending into the eye and temple, or into the ear, affecting especially the right side of the face.

Kali carb.—There are burning pains, with twitching of the muscles, affecting preferably the mental and infra-orbital branches; pains are accompanied by beating of the temporal arteries; they are aggravated by eating sour fruit or by mental excitement.

Cuprum.—There are lightning pains, with violent throbbing of the temporal arteries and great anguish; the pains are aggravated by touch.

Bryonia alba.—There are severe aching and shooting pains, which may extend to the ear, involving especially the left inferior dental branch; teeth and gums are sore; sometimes pains are relieved by warmth, but aggravated by chewing and by cold.

Cedron.—The supra-orbital nerve is involved, "brow ague." There are pressing and severe shooting pains over the left eye, extending to the temple. This remedy should be compared with *chininum sulph.*

Verbascum.—There is a sensation as if the parts were crushed by a pair of tongs. The pains are worse from 9 A. M., from talking, sneezing and chewing, and are attended with headache, vertigo, belching and the expectoration of tough saliva.

Plantago major.—There are frequently decayed teeth. The pains shoot through the face and are violent. They are relieved while the patient is eating and are worse from cold air.

Kalmia latifolia is indicated when the pains are stitching, darting and shooting in character. The right eye and orbit are involved, and there are sharp shooting pains, which are aggravated when the eye is moved.

The resection of the nerve with the cranium has been followed by relief in some cases. The resection of the Gasserian ganglion has relieved some cases, but it has not always brought relief. Decaying teeth should be looked after. Deep injection of alcohol into the nerve is highly spoken of.

CERVICO-OCCIPITAL NEURALGIA.

From the highest four cervical nerves, five sensory nerves are given off, the greater and the lesser occipital, the great auricular, the inferior subcutaneous of the neck and the supra-clavicular. All of these or any of them may be attacked by neuralgia. The great occipital nerve is the one most frequently involved.

The cause of the neuralgia is generally some injury, toxæmia, uræmia, syphilis, disease of the spinal membrane or tuberculosis.

Symptoms.—There is pain radiating from the occiput to the parietal bone. A pressure point may exist midway between the mastoid process and the atlas. There may be pain and redness of the face, secretion of tears, contraction of the pupils and vomiting. In some cases nodules appear beneath the skin, and the hair occasionally falls out, due to trophic disturbances.

Pain dependent upon the lesser occipital nerve is felt upon the lateral aspect of the occiput, and extends to the ear, a pressure point being situated at the point of exit of the nerve just behind the ear. Pain dependent upon the great auricular nerve is complained of about the mastoid process, upon the posterior aspect of the auricle and in the parotid gland. If it is the inferior subcutaneous that is the offending nerve, the pain is in the anterior, inferior and median portions of the neck, while in neuralgia of the supra-clavicular nerve the pain is felt in the region of the acromion process, the shoulder and the upper portion of the thorax.

Treatment.—Neuralgia involving these nerves must have the careful investigation that characterizes all other cases. If injury is the cause it must receive attention. Any displacement of a vertebra must receive proper manipulation to replace it. Syphilis and tuberculosis require most cautious and careful management. Thorough massage at the origin of these nerves is of service as are galvanism and static electricity. A cool sponge applied up and down the spine followed by thorough friction with a dry towel is of service.

Gelsemium.—This remedy should be studied in this class of cases, when they are of a congestive, neuralgic or reflex type. It begins in the cervical region and extends up over the head and causes a sensation of bursting the forehead and eyeballs; accompanying this there is a sensation of complete relaxation and prostration of the whole muscular system. The pain is relieved following the passage of a large quantity of urine.

Silicea.—This remedy should be studied when the pain passes from the upper portion of the spine to the vertex and settles over one of the eyes, usually the right. The pain is sticking, tearing and pressing in character. It is made worse by motion, noise or light. Both sight and hearing are acute. The patient desires to lie down in a dark quiet room, and gets relief from warm applications to the head. There is frequently in these cases a history of spinal injury.

Sanguinaria.—This remedy should be studied in these cases when the pain begins in the upper cervical region and extends over the head and settles over the

right eye. It is attended with nausea, vomiting and chilliness. The patient seeks a dark room and lies perfectly quiet and finds relief from vomiting and from sleep.

Rhus radicans.—The muscles of the back of the neck are sore to touch. The pain spreads upwards over the entire head. It is worse during rest and cold, better on moving and from warmth. The attacks are brought on by a cold draught on the back and neck and from cold, damp and rainy weather.

Ignatia amara should be remembered in those who are of a nervous temperament, who are sensitive and easily excited. They complain of throbbing in the occipital region, which is worse from stool, from smoking and from the smell of tobacco smoke.

Acidum picricum should be studied in those who have been over-taxed and exhausted. There are severe pains, which may be burning in character in the cervical region, which is sensitive to pressure. In those cases in which there is a high degree of anæmia present the *Ferrum picrate* will be found of service. If restlessness, uneasiness and inability to keep the feet quiet are characteristics the *Zincum picrate* should be studied.

CERVICO-BRACHIAL NEURALGIA.

This usually involves from the fourth to the eighth cervical and the first dorsal nerves. It may be of traumatic origin. Muscular weakness and atrophy may accompany the neuralgia if a neuritis complicates. It shows itself in the shoulder, arm, forearm and head. The ulnar, cutaneous branches of the circumflex, musculo-spiral and radial nerves are the most frequently involved. Pain is frequently severe and persistent. It often darts up and down the nerves instead of towards the periphery only.

Treatment.—Absolute rest is demanded, as exercise is apt to bring on a relapse. If the cause is traumatism, *Arnica* should be studied.

Aconite, internally and locally, has been of some service when the disease is dependent upon cold and exposure. *Phytolacca* appears to be of some service. Massage and electricity have not been of much benefit, except later in the case. *Thein* in one-fourth grain doses, hypodermatically, has been particularly successful.

Phosphate of strychnia 2x should be studied in anæmic, weak, debilitated subjects with poor appetite and digestion.

INTERCOSTAL NEURALGIA.

This is most frequently upon the left side of the body in young women of a neuropathic temperament.

It may be dependent upon irritation, traumatism, anæmia, in spinal curvature. While the pain is usually continuous, yet it may have an acute exacerbation. The pain is confined to the nerves and shows the sensitive points. This renders but little fear of a mistaken diagnosis.

Treatment.—Any cause as spinal curvature, a false position while sitting and using the typewriting machine, or taking dictation should be corrected. If the patient is exhausted, prolonged rest is helpful. Strapping of the chest and limiting of motion is also of service. In many cases the application of heat, of heat and cold in alternation, followed by thorough friction is of benefit. If a condition of anæmia is present it should be overcome by means of diet, hygiene and well selected remedies. The remedies which may be indicated in this condition are many and must be carefully differentiated. *Strychnia phos.*, *Nux vomica* and *Ignatia* are of service in many cases, as are *Zincum phos.*, *Zincum pic.*, *Chininum*, *Arsenic. sulph.* and *Cimicifuga* when the pain is confined to the lumbar region. *Arnica* is beneficial in many cases when the parts feel sore as if bruised. The arnica plaster may be used with advantage, as it not only meets the needs of the remedy, but it supports the parts. *Ranunculus* is of service

when there are burning or stitching pains in the chest which result in oppressed breathing. *Spigelia* should be studied in cases when the left side is involved.

NEURALGIA OF THE EXTERNAL CUTANEOUS NERVES OF THE THIGH.

Pain confined to the nerves on the outer aspect of the thigh is frequently met with. It is common in those who support one limb on the other. The patient should not sit with one limb over the other. Thorough friction of the parts is beneficial.

OBTURATOR NEURALGIA.

This appears suddenly in connection with strangulated obturator hernia, and is often diagnostic of the condition. The pain extends along the aspect of the thigh. The abductors of the thigh are paralyzed at the same time. In these cases the hernia should be reduced and *Arnica* administered.

CRURAL NEURALGIA.

This is uncommon. It is usually of traumatic origin. Aneurism of the femoral artery, crural hernia and disease of the vertebral column have been observed as the etiology in certain cases.

The pain is referred to the anterior and internal aspect of the thigh, and in the course of the great saphenous nerve along the inner aspect of the thigh and the inner border of the foot and of the great toe.

There are diagnostic pressure points, (crural) just below Poupart's ligament, (knee joints) on the inner aspect of the knee joint, (plantar points) in front of the inner malleolus, (toe joints) at the base of the great toe.

The general treatment of neuralgia should be introduced. *Xanthoxylum* and *Cubeba* are of service.

SPERMATIC NEURALGIA.

This pain is confined to the course of the spermatic cord and affects the testicles, epididymis and labia.

Of the etiological factors are onanism, sexual excess, anæmia, neurasthenia, traumatism and gonorrhœa.

Treatment.—The scrotum should be supported with a suspensory bandage. The causative factor should be controlled and its effects overcome. If the patient is anæmic he should receive a nourishing diet and such remedies as are indicated. If neurasthenia complicates the cases, sponging with warm water at night followed in the morning by a rub with a dry, cold towel or a dry salt towel is beneficial. If the neuralgia follows gonorrhœal infection, either medorrhin or the gonorrhœal vaccine is usually beneficial.

In neurotic cases when the urine contains calcarea oxalates, *Oxalic acid* is often beneficial; when the testicle and cord feel as though they were being crushed *Clematis erecta* should be studied. If there is a history of traumatism *Arnica* will be of service.

LUMBO-ABDOMINAL NEURALGIA.

This affects the ilio-hypogastric, ilio-inguinal, lumbo-inguinal and external spermatic nerves. The painful area extends over the scrotum and labia majora and the anterior aspect of the thigh; a pressure point is found at the middle of the crest of the ilium. With the attack of pain there may occur priapism, a discharge of seminal fluid or leucorrhœa.

The causes are exposure to cold, disease of the vertebral column, tumor in the pelvis and displacement of the uterus.

Treatment.—In the management of the cases careful examination should be made for displaced uterus.

Hot applications and the use of superheated air have been of service. Electricity, both galvanic and faradic, have proven effective. The general treatment of neuralgia should be compared.

Conium, *Valerianate of zinc*, *Bromide of ammonia*, *Cimicifuga* and *Cannabis indica* should be studied.

ARTICULAR NEURALGIA.

This is met with in mild, nervous, hysterical subjects, the result of exposure to cold and traumatism.

The knee and hip joints are most frequently affected. The patient usually keeps the joint quiet, and in time atrophy of the tissue about the joints appears.

Care must be exercised to distinguish rheumatic arthritis from articular neuralgia.

Treatment.—The patient should be encouraged to use the joint, which should be massaged. Electricity and other measures should be employed to produce or encourage a healthy blood current and prevent atrophy about the joint.

Arnica should be studied when it is the result of traumatism.

Bryonia and *Rhus toxicodendron* should be remembered after exposure to cold.

Ignatia, *Zincum* and *Argentum metallicum* should be studied in nervous, hysterical cases.

PHRENIC NEURALGIA.

This is a pain which occurs paroxysmally in the course of the phrenic nerve at its attachment to the diaphragm, and gives rise to difficulty in breathing.

Among the causative conditions are diseases of the heart, aneurism of the aorta, disorders of the liver, kidneys, intestines or spleen, pleurisy and pericarditis that produce pressure upon the nerve.

Treatment.—This depends upon the findings of a most thorough examination of the case and the relief of the exciting cause.

ERYTHROMELALGIA.

Synonym.—Red neuralgia.

Definition.—This is a chronic disease usually confined to one of the extremities. There is severe pain with flushing and a local increase of the temperature.

Etiology.—The disease is most common in males, and in those between thirty and sixty years of age. Trauma, syphilis, abuse of alcohol, standing and exposure to cold are considered etiological factors.

Pathology.—This is not definitely determined. Peripheral irritation of the nerve and primary inflammation of the same is present in some cases.

Symptoms.—There is burning of the part, which is made worse by standing and movement, and is better from lying down. The pain is followed by redness, and is made worse by allowing the part to hang down and by warmth. The veins become distended and pulsation may be observed in the arteries of the part. The local temperature is increased. Cold and cold applications relieve the pain. The attack may continue for many days or years.

Treatment.—Rest with the part elevated is the most important factor. The diet should be nutritious and abundant. Faradism is often of service.

PARALYSIS OF THE MUSCULO-SPIRAL NERVE.

Etiology.—Traumatism is the great cause, either a blow upon, or a fracture of the humerus. The nerve may be compressed by a callus, a contraction of the triceps muscle or by the head of a crutch in the axilla. It may result from neuritis, the result of exposure to cold. The pressure of the head upon the arm is a common cause.

Symptoms.—The most characteristic symptom is loss of power of the extensors of the elbow and wrist. There is wrist-drop, and the fingers and thumb cannot be extended. The power of flexion may also be enfeebled. The palsied muscles may later present the reaction of degeneration.

Diagnosis.—This is based upon the clinical history and the symptoms as presented.

NEURITIS OF THE MUSCULO-SPIRAL NERVE FROM PRESSURE.

1. Wrist-drop is unilateral.
2. The onset is rapid.
3. No blue line on the gums.
4. Administration of potassium iodide does not show lead in the urine.

NEURITIS DUE TO LEAD POISONING.

1. Wrist-drop is bilateral.
2. The onset is slow.
3. There is a blue line on the gums.
4. Shows lead in the urine.

Prognosis.—This depends upon the cause.

Treatment.—Rest should be insisted upon. If there is pressure upon the nerve it must be removed. Hyper-

extension by means of a splint and plaster of Paris bandage is of service. As the acute symptoms subside massage, electricity, either the static spark or galvanism should be employed, and, as a last resort, the application of rubber muscles.

The remedies must be selected according to the indication. *Aconite* and *Belladonna* should be remembered in cases due to exposure. *Hypericum* should be remembered when the condition is due to traumatism. *Strychninum* is of service when the acute symptoms have subsided.

PARALYSIS OF THE PHRENIC NERVE.

Etiology.—This may be dependent upon a disease of the spinal cord or vertebræ, pressure from tumors or aneurism, neuritis or injuries to the neck.

Symptoms.—The movement of the diaphragm is enfeebled or abolished. If one nerve only is affected, but one side is enfeebled. If both nerves are involved the diaphragm does not descend in inspiration nor does the abdomen protrude upon deep inspiration, but upon the contrary there is retraction. Exertion induces dyspnœa, and coughing becomes difficult.

Prognosis.—This depends upon the cause.

Treatment.—This must be directed to the relief of the cause.

NEUROMATA.

There is a tumor in the course of a nerve composed of fibrous and nerve tissue. It produces pain and spasms, and, later, loss of function and paralysis. The management of these cases is surgical. The remedies that have appeared to exercise any influence are: *Conium maculatum*, *Calcareæ fluorica*, *Muriate of ammonia* and the application of *Veratrum*.

NEURITIS.

Definition.—This is an inflammation of a nerve. It may be local when a single nerve is involved, or multiple when more than one nerve is involved.

Etiology.—Cold, traumatism, as stabs, contusions, cuts, stretching and tearing may each be the cause of neuritis, as well as pressure. It may be the result of toxins and mineral poisons, alcohol may give rise to a peripheral neuritis.

Pathology.—The inflammation may be confined to the nerve sheath (perineum), to the interstitial part, or to the axis cylinder. In the first condition the nerve is swollen, red and infiltrated with leucocytes. In the last instance degenerative changes of the axis cylinder are noticed. The degeneration may extend down the nerve, because the fibers are cut off from the trophic cells, and the muscles may undergo atrophy. If recovery takes place there is an increased fibrous tissue formed in the nerve.

Symptoms.—There is slight fever. Pain and tenderness confined to the nerve trunk and its periphery are the leading symptoms. The pain may be described as burning, aching or shooting in character; it is worse at night. The nerve may be swollen and the skin may be red over its course. There is muscular twitching and contracting. If the disease is protracted muscular weakness and wasting take place, with slight edema, tremor, hyperesthesia or anesthesia. Acute cases

usually terminate in recovery in from two to three weeks, while chronic cases may last for months and years.

Diagnosis.—Neuritis should be distinguished from neuralgia.

NEURITIS.

1. The pain is continuous.
2. The pain is made worse from pressure.
3. There are altered sensations.

NEURALGIA.

1. The pain is intermittent.
2. Made better from pressure.
3. The sensations are normal.

Prognosis.—In mild cases this is favorable. In chronic cases it may last for months and years. Cases due to suppuration are not as likely to recover.

Treatment.—Rest is most essential; if possible the patient should be kept in bed. If the arm is affected it should be carried in a sling; but if the nerves of the trunk or legs are attacked, the patient should be kept in bed. The diet should be nutritious, but plain and non-stimulating. These cases demand a local application. In the majority of cases, heat is more agreeable to the patient than cold, and a hot water bag, or cloths wrung out of hot water, serve well. If heat is employed care should be exercised that the parts are not blistered. At times cold agrees with the patient better than heat.

Alcoholic cases require the attention of a nurse. The alcohol should be withdrawn as quickly as possible, without causing delirium tremens. These patients require a bland, nutritious diet. Milk, beef tea, with plenty of pepper, and the prepared foods, are highly beneficial.

When pain and active symptoms have subsided, electricity may be introduced. The galvanic current is preferable, the positive electrode passing along the painful nerve. Massage is of service in restoring the atrophied nerve. Stretching of the nerve may be of service in certain cases.

Nux vomica should be studied in cases dependent upon alcohol when the patient is a malicious individual disposed to anger, spite or deception, and is suffering from the bad effects of coffee, tobacco, alcoholic stimulants, highly seasoned food, over-eating and loss of sleep. He cannot keep awake in the evening and awakes at 3 or 4 A. M., then falls into a heavy sleep at daybreak from which it is hard to arouse him.

Strychnia should be studied with much the same group of symptoms, but the patient shows profound prostration and weakness.

Cimicifuga.—The muscular system is involved, and there is severe neuralgia, and the pains in the belly of the muscles of the limbs are excruciating. It is frequently indicated in alcoholic cases.

Aconitum napellus.—The patient complains of numbness, and is restless. There is usually a history of exposure to cold, damp winds. The fever rises quickly and the pulse is rapid and light.

Ferrum phos.—The case is weak, delicate and anemic. The pulse is soft and the arterial tension low. This should be given before the exudate has taken place.

Arsenicum.—The pains are burning, tearing, shoot-

ing in character. The extremities are usually swollen and the patient is restless.

Arnica montana.—There may be a history of traumatism, the nerve being bruised, and there is a sensation of soreness all over the body.

Hypericum should also be remembered in similar cases, but the nerve shows more laceration than bruising. There are sharp cutting pains along the course of the nerve, which terminate with a twist in the foot or hand.

Belladonna.—The pain is severe, paroxysmal and throbbing in character, and the parts show a tendency to paralysis, are sensitive to touch, so that he cannot bear the bed clothing. He is sleepless and the pain is relieved by warmth.

Causticum should be compared with *belladonna* when the paralysis is a prominent symptom.

Rhus toxicodendron.—There is a tendency to rheumatism; the patient is restless and finds momentary relief from a change of his position. The disease is often produced from getting wet.

Agaricin.—The parts are red, hot and swollen. There are burning, itching and cramps of the hands and feet. There is twitching of the muscles of the hands and feet. The sleep is restless and disturbed.

Bryonia alba.—The parts are red, swollen, sensitive to touch, and there are sticking, piercing, tearing pains through the affected parts.

Bellis perennis should be studied in those cases where *arnica*, although apparently indicated, has done no good.

MULTIPLE NEURITIS.

Synonym.—Peripheral neuritis.

Definition.—This is an inflammation of several nerves, frequently symmetrical.

Etiology.—Certain cases are toxic in origin, as from lead poisoning, alcohol, tobacco and arsenic. Another class is dependent upon the infectious agents, as diphtheria, typhoid fever, malaria and those dependent upon exposure to dampness and over-exertion.

Pathology.—This is very similar to that of neuritis in isolated nerves. In chronic cases the changes in the muscles are pronounced. Meningitis and chronic myelitis may be met with. The nutrition of the muscles suffers sooner or later, when they become wasted and flabby.

Symptoms.—These vary. They may begin abruptly, or there may be symptoms of numbness, tingling in the hands and feet, and muscular cramps, for some time. At the onset the temperature rises to 102° F. to 104° F. There may be splenic enlargement, jaundice and albuminuria. There may be acute pain in the joints, while the wrist and foot-drop are common. There is usually tenderness in the muscles, especially in alcoholic cases, which are aggravated by the heart movement. Paralysis may develop within a few days; in other cases it develops slowly. The legs are more frequently involved than the arms. Inco-ordination is not infrequent. There is slight edema about the ankles.

There is severe colic resembling visceral neuralgia; mental symptoms similar to delirium tremens are common. Recurrence of the attack does occur.

Diagnosis.—The diagnosis of multiple neuritis is usually not difficult. It may simulate locomotor ataxia. The alcohol variety is most frequent in women.

MULTIPLE NEURITIS.

1. The nerve trunk is tender.
2. Atrophy of the muscles is present.
3. The peculiar gate is dependent upon the muscular paresis.
4. Drags the toes on the ground.
5. Absent.
6. Sphincter muscle is taut.
7. Not present.

LOCOMOTOR ATAXIA.

1. The nerve trunk is not tender.
2. This is absent.
3. The gait is due to the incoordination.
4. Strikes the heels first.
5. Argyle Robinson pupil is present.
6. Paralysis of sphincter.
7. Perforation ulcer may be present.

Complications.—Pulmonary complication is common, especially tuberculosis.

Prognosis.—Death may occur, but is not the rule. The disease is often prolonged; recovery takes place, after a period of months or years.

Treatment.—The cause should be sought out and corrected if possible; absolute rest is of importance whether the case is dependent upon alcohol or not. As the case advances splints are of service to prevent contractures and help allay pain. Massage and electricity may be employed when the acute symptoms have subsided; a weak galvanic current, the positive pole applied to the painful part, will relieve the pain.

The diet should be plain, but not stimulating in any way. To relieve the pain, a hot water bag or hot cloths will be of service.

Belladonna.—The pain is severe and the parts are red and congested, and extremely sensitive to pressure.

Arsenicum.—The burning pain is present. The stomach is complained of; there is nausea and vomiting.

Rhus tox.—There is a history of exposure. The restlessness is allayed temporarily by motion. Dampness, cold and damp weather aggravate the condition.

Gelsemium and *Causticum* should be studied carefully when there is a paralytic condition.

Cimicifuga, *nux vomica* and *strychnine* should be studied in the alcoholic cases.

The therapeutics of neuritis should also be compared.

BRACHIAL NEURITIS.

Definition.—This is an inflammation of the brachial plexus of nerves.

Etiology.—It is most common in gouty subjects who have passed the fiftieth year of age, and are exposed more or less to cold.

Symptoms.—Pain in the distribution of the nerves composing the brachial plexus is the leading symptom. It may be felt at the wrist, above the clavicle and in the scapular region. Trophic changes may occur and a perfect recovery is seldom the rule.

Treatment.—This is similar to that of the other forms of neuritis.

OPTIC NEURITIS. .

Etiology.—This may be the result of exposure to cold and wet; in other cases it is associated with cerebral tumor, infectious diseases, diabetes and chronic nephritis.

Pathology.—The whole nerve or only a portion of it may be affected, the papilla may be swollen with haziness of the margins (choked disc).

Symptoms.—During the early stages it is only by use of the ophthalmoscope that the condition can be determined. The vision is but slightly affected. The field of vision is contracted.

Diagnosis.—Severe cases terminate in total blindness, while in mild cases there is a degree of vision lost.

Treatment.—This is symptomatic. Syphilis should receive appropriate treatment. Alcohol and tobacco should be avoided.

FACIAL PARALYSIS.

Synonym.—Bell's Palsy.

Etiology.—This is a paralysis of the seventh nerve; the result of cold, exposure, traumatism, infectious toxic agents, and a neurotic diathesis.

Symptoms.—The affected side of the face is reddened and immovable; from a weakness of the facial muscles, the patient is unable to close the eye on the affected side or pucker the lips; as a result, the mouth drops and the speech is muffled. The forehead cannot be wrinkled, and the eye remains open during sleep. He cannot whistle, blow out a candle or expectorate; the saliva dribbles from the corners of the mouth.

Prognosis.—Recovery is usually complete within several months if the paralysis is of peripheral origin. If it is of central origin, the prognosis should be guarded.

Treatment —If the patient cannot close the eye, the side of the face and eye should be protected by a wool bandage. Gentle massage is of service in many cases. Electricity should not be used early in the case, as it may be harmful.

Aconite is of service in acute cases, the result of exposure to cold winds.

Belladonna is indicated when the right side of the face is involved. At times neuralgia complicates the case. There are throbbing, redness and hyperesthesia of the face.

Rhus toxicodendron should be remembered in cases suffering from rheumatism and from exposure to dampness.

Causticum.—Good in chronic cases when the left side of the face is involved and there are muscular twitchings and contractions of the lids and eyebrows.

Kali hydrojodicum.—Suited to syphilitic cases.

Hypericum.—Is of service in cases resulting from traumatism of the nerve.

Arnica.—The paralysis is due to injury and there is much soreness of the affected parts, with inflammation and hyperesthesia of the facial nerve.

Gelsemium.—The patient has a sensation as if the parts were bruised. The left side is the one most frequently affected.

Kali chlor.—There is a sensation of pressure and tension in the face, and the paralysis affects the muscles of the cheek.

INFANTILE HEMIPLEGIA.

Etiology.—This usually develops during the first two years of life; occasionally it is a year or two later. The cause is not known. It has been attributed to an acute inflammation of the gray matter of the cortex, or to a vascular obstruction.

Symptoms.—These are generally ushered in by malaise and a slight fever which terminates in a convulsion, which recurs at brief intervals. During the convulsions the tongue is bitten, the sphincters are relaxed and consciousness is lost. The paralysis involves the face, arm and leg. It is most apparent in the arm, as the child grows the parts do not develop. The knee reflex is exaggerated, ankle clonus may be present and a tremor, which is present during voluntary movements, may appear.

Prognosis.—This is good so far as life is concerned, but physical and mental debility remain. The impaired speech may be overcome.

Treatment.—These cases should receive careful hygienic and dietetic treatment. Sponging with tepid water is of service during the early stages. The remedies must be selected on the total findings in the case.

FACIAL HEMIATROPHY.

Synonym.—Neurotic Atrophy of the Face.

Definition.—This disease is characterized by a gradual atrophy of one side of the face.

Etiology.—It occurs before the twentieth year of age, mostly in females. Some cases appear to be hereditary; it may follow the acute infectious diseases. Trauma is a predisposing factor, but the cause of the disease is unknown.

Symptoms.—The first symptom is a white or yellowish patch upon the cheek, chin or forehead. This gradually increases in size. There may be several patches which in time coalesce. The skin may become glossy or parchment-like, and a depression may appear from atrophy of the subcutaneous tissue. There is no paralysis and the electrical responses are unchanged. The muscles of the tongue and the cartilages of the nose and ear may also be affected. Neuralgia of the fifth nerve may appear. The alveolar processes may atrophy and the teeth loosen.

Prognosis.—The disease is progressive, but does not endanger life.

Treatment.—This is not satisfactory. The individual case should be studied in its totality and treated accordingly.

SPASMODIC TIC.

Spasmodic tic, habit spasm, habit chorea, is characterized by a twitching and jerking of one or more groups of muscles, as shrugging of the shoulders, sniffing the nose, blinking the eyes and facial grimaces. It may change location. It may result from eye strain or ocular and nasal disease. Any point of irritation should be corrected and the condition overcome, if possible, by the patients.

CEREBRAL APOPLEXY.

Synonym.—Cerebral Hemorrhage.

Etiology.—While this may occur at any age, it is most common in those who are past middle life, and in males. Hereditary tendencies, as is observed in arteriosclerosis, degeneration of the walls of the blood vessels and plethora are active causes. This may be the result of gout, alcoholism, rheumatism, syphilis, nephritis, lead poisoning, infections and blood diseases. Embolism, over-exertion, excitement and hypertrophy of the heart are the causes when the arteries are diseased. It is more common in temperate than in tropical climates, and in winter than in summer.

Pathology.—Upon examination of the brain atheromatous vessels, small ruptured aneurisms, infected emboli which close the blood vessels may be present. The latter in turn become diseased, dilating and rupturing. Branches of the middle cerebral artery are the most frequent source of the hemorrhage. The most frequent situation of the hemorrhage is the corpus striata close to the lenticular nucleus and upon the left side of the brain. The second most frequent site is the pons, the next the white matter of the frontal region. The optic thalamus may be involved. Hemorrhages may take place into the lateral ventricles, but it is seldom primary. Meningeal hemorrhage into the arachnoid space is met with, as is extradural hemorrhage, the result of traumatism. If the hemorrhage

is extensive there may be great destruction of the brain tissue. If it is small and is produced slowly, clotting and coagulation follow. But a small area may be involved; later the clot may soften, the surrounding brain tissue be discolored and occasionally a brownish fluid remain which is enclosed in a cyst wall, which is known as an apoplectic cyst. If the hemorrhage is absorbed only a cicatrix remains, which is known as an apoplectic cicatrix. Frequently the brain tissue surrounding the hemorrhage undergoes degeneration and softening. The degeneration may be secondary in the pyramidal fibres of the medulla and cord if the primary hemorrhage did not prove fatal. In time fibrous bands replace the degenerated nerve fibres.

Symptoms.—There are no true prodromata. There is a sudden loss of consciousness attended by a general muscular relaxation and a primary lowering of the temperature. The breathing is labored and stertorous. The symptoms may be ushered in by a convulsion. The pulse is usually slow and of a high tension. The pupils show some contraction and are unequal. The reflexes are absent or unequal. There is a conjugate deviation of the head and eyes. The feces and urine may pass involuntarily. The urine frequently contains albumin and sugar. There may be vomiting. As the symptoms and coma pass off the patient may return slowly to consciousness only to show the paralysis. As the tongue is protruded it deviates to the paralyzed side; articulation, phonation, and deglutition are difficult. The paralysis varying with the location of the

hemorrhage may involve a leg, arm and face of the opposite side of the body. The affected muscle shows a varying degree of anæsthesia.

Hemorrhage into the crus gives rise to paralysis of the oculomotor nerves on the same side, together with paralysis of the arm, the face, and the leg of the opposite side. If the geniculate body is pressed upon hemianopsia develops.

Hemorrhages into the pons produce coma with general bilateral convulsions, which may affect only the lower extremities. The pupils are usually contracted. The temperature is lower early in the case; but after a few hours it is elevated. If the seventh nerve is involved there is paralysis of the face on the same side as the hemorrhage, while hemiplegia and hemianesthesia develop on the opposite side of the body. Should the hemorrhage be high up in the pons, the facial paralysis and the hemiplegia are upon the same side. Should the sixth nerve be involved there will be paralysis of the external rectus muscle, with internal strabismus of the eye on the same side as the hemorrhage. Vomiting, polyuria, glycosuria, and albuminuria may be present.

Hemorrhage into the medulla is rare; if it is profuse death occurs quickly. The symptoms are similar to those of hemorrhage into the pons.

Hemorrhage into the cerebellum is indicated by pain in the cervical portion of the neck, and occiput. Vomiting and convulsions are usual. Motor paresis of the limbs develops upon the same side as the lesion. These cases are usually fatal.

Hemorrhage into the ventricles should be suspected if following symptoms of cerebral hemorrhage from which recovery is partial, the patient is taken by a sudden relapse, which is attended by a pronounced coma. The temperature may be slightly elevated, but now drops only to mount higher. The pupils may show either dilation or contraction. The condition is usually fatal.

Hemorrhage of the meningeal vessels is indicated by pain in the head with coma and convulsions which are localized.

In the initial attack the coma may pass away in a short time if the attack is slight, and recovery is likely to take place. An early return of the reflexes should be considered a favorable sign. Headache and some difficulty in articulation is usual, but may pass away and only the paralysis remain. Sudden death is rare, except in the cases already mentioned. If recovery takes place the lower extremities are the first to improve; later the shoulders and upper portion of the arm show improvement before the forearm and the hands.

If the acute symptoms subside and death does not occur, the secondary symptoms, especially the paralysis, persist for a long time. The secondary changes in the muscles are slight. The legs may regain their muscular power, but rigidity and contractions are common in the arms. The contractions are attended with loss of power and sclerosis of the motor tracks. Pain is present, and atrophy of the muscles, arthropathies, tremor, and chorea may develop later.

Diagnosis.—This is based upon the symptoms as outlined. It should be differentiated from the following diseases :

CEREBRAL HEMORRHAGE.

1. There is loss of consciousness.
2. May be repeated.
3. Gives rise to permanent paralytic symptoms.

CEREBRAL CONGESTION.

1. This is but transient.
2. Is usually repeated.
3. This does not.

CEREBRAL HEMORRHAGE.

1. The result of degeneration of the blood vessel.
2. Loss of consciousness of longer duration.
3. The pulse is usually slow, full and hard.
4. The breathing is labored and stertorous.
5. The reflexes are lost, urine and feces pass involuntarily.
6. Return to consciousness is attended with paralysis.
7. May be repeated.

SYNCOPE.

1. The result of cerebral anæmia.
2. Of short duration.
3. It is feeble.
4. It is shallow and sighing.
5. Reflexes are preserved, and the sphincters are usually normal.
6. It is not attended by paralysis.
7. Is repeated.

CEREBRAL HEMORRHAGE.

1. Coma from this appears suddenly.
2. The coma is profound.
3. No stimulant will overcome coma.
4. Not necessarily the odor of alcohol on the breath nor alcohol in the urine.
5. Conjugate deviation of the head and eye is usual.

ALCOHOLIC INTOXICATION.

1. Appears less suddenly.
2. Not so profound.
3. Stimulant may overcome the coma.
4. Both may be recognized.
5. Is not present.

CEREBRAL HEMORRHAGE.

6. Pupils are contracted and unequal.
7. Secondary fever is present.
8. As consciousness returns there is palsy.

ALCOHOLIC INTOXICATION.

6. They are usually dilated.
7. It is not present.
8. It is not present.

CEREBRAL HEMORRHAGE.

1. The coma and symptoms appear without previous history.
2. The temperature is primarily depressed, later elevated
3. Conjugate deviation of the head and eyes is present.
4. Paralysis appears.
5. Pupils are unequal.
6. The breathing is noisy, but not so infrequent.

OPIUM POISONING.

1. There is a previous history if obtainable.
2. This is not observed.
3. This is not present.
4. Does not.
5. Are equal.
6. Is slow.

CEREBRAL HEMORRHAGE.

1. Is not cyanotic.
2. Respirations are noisy.
3. Conjugate deviation of the head and eyes is present.
4. Resuscitation is impossible.
5. Followed by paralytic symptoms.

ASPHYXIA.

1. Appears cyanotic.
2. Are interfered with, but not noisy.
3. This is not present.
4. Measures to this end may be successful.
5. It is not.

CEREBRAL HEMORRHAGE.

1. The coma appears more suddenly and is profound.
2. Usually in those past the middle life.
3. If convulsions are present they are unilateral.

UREMIA.

1. Appears slowly and is not so profound.
2. May appear in the young as well.
3. They are usually general.

CEREBRAL HEMORRHAGE.

4. At first there is a depression, later an elevated temperature.
5. Pupils unequal and conjugate deviation of head and eyes is present.
6. Paralysis following hemorrhages is usually hemiplegic and persistent.
7. Tongue may be normal in appearance, and there is not usually vomiting.
8. No special odor from the body.

UREMIA.

4. Not usually present in uremia.
5. Not present.
6. If present is circumscribed and transitory.
7. The tongue is dry and is covered by a thick brownish fur, and there is frequent vomiting.
8. Peculiar musty odor from the body.

Prognosis —If the coma is not profound and there is indication of returning consciousness in a few hours the case is favorable. If there is no indication of returning consciousness within twenty to thirty hours the case is decidedly unfavorable. An irregular pulse, a slow or rapid respiration, or the appearance of a Cheyne-Stokes type of respiration is unfavorable, as is the appearance of sugar or albumin in the urine.

Treatment.—When the stroke occurs the patient should be placed in recumbent posture with the head elevated; cold applications (as an ice bag) should be applied to the head, and hot applications to the hands and feet. The latter may be placed in mustard water (a tablespoonful to two quarts of water) or cloths may be wet with this and then applied. All collars and bands should be loosened. The patient should be given absolute rest. All exertions and excitement should

be avoided. When the paralyzed side is ascertained the patient should be turned partially upon that side. The diet and feeding of the patient is important. During the stage of coma great care should be exercised; the food should be liquid and given by a teaspoonful; a second teaspoonful should not be given till it is known that the first has been swallowed, otherwise choking or aspiration pneumonia may result. Peptonized milk, meat extracts, and peptonoids are good. In those in which there is rigidity of the inferior maxilla, or paralysis of the organs of deglutition, a small rubber tube may be passed through the nose into the stomach and liquid food given in this method. In some cases rectal alimentation is necessary. In some cases mastication is impossible and any food but liquids remains about the teeth and is a source of irritation. In cases of facial paralysis, if deglutition is perfect, all food should be semi-solid, and should be taken slowly. In all of these cases the mouth should be cleansed frequently with a mild solution of boracic acid, listerine or peroxide of hydrogen. The majority of these patients cannot take sufficient exercise and as a result become constipated; in these cases cooked fruits and foods rich in cellulose should be used. If large quantities of fluids are taken the action of the kidneys should be assisted, that the extra fluid may not raise the arterial tension. Alcoholic stimulants should not be used.

Glonoïn.—This remedy should be remembered in the early stages when the arterial tension is high and the pulse irregular.

Belladonna.—When this remedy is indicated there is not as acute arterial excitement as in the above remedy, but the congestion is pronounced and there is throbbing of the carotids; the pupils are dilated. There are convulsive movements in various parts. The pulse is frequently irregular.

Aconitum napellus.—This should be remembered when there is great arterial excitement with dry skin and restlessness, and the pulse is full and bounding.

Veratrum viride should be compared when the arterial excitement is pronounced, but the nervous excitement is not so great.

Opium.—This is an established remedy when the respirations are noisy, the coma is marked, the face is dusky and the patient is covered with sweat.

Arnica montana.—This remedy should be remembered when the acute symptoms have subsided to assist absorption and prevent the formation of an apoplectic cyst; also in cases due to traumatism.

Sulphur.—This remedy is of service following *arnica* and assists absorption when the latter has ceased to act.

Nux vomica.—This remedy is indicated as a preventive in those of sedentary habits who are addicted to stimulants.

CEREBRAL ANÆMIA.

This is a condition in which the blood supply of the brain is deficient. It may be general, the result of cardiac insufficiency, from accumulation of blood elsewhere, from pressure on the large vessels to the head, and from pressure on the brain. It may be local from obstruction of the circulation by vascular occlusion or by pressure from without. It may develop gradually or suddenly.

Symptoms.—When general there is headache and vertigo, impaired mentality, motor weakness, drowsiness or insomnia, hallucination, mania, or melancholia. The optic disc may be pale. The symptoms are aggravated by the erect posture and may be mitigated by recumbency or inhalation of amyl nitrite.

When local there is an impaired nutrition and loss of function in the affected area. Occurring suddenly, it is attended with loss of consciousness and convulsions; when of gradual development it occasions headache, vertigo, numbness, tingling and weakness.

Treatment.—This is dependent upon the cause, which should be sought out and corrected. Diet, fresh air, change of scenery, each in its place is beneficial and one of the following remedies may be indicated:

Cinchona.—This should be studied when caused by the excessive loss of animal fluids, as in hemorrhage, diarrhoea, leucorrhoea, spermatorrhoea and over-lactation. There is headache, especially in the morning;

ringing in the ears; pale, cold face; coldness of the extremities; great debility, with tingling and trembling or twitching of the muscles and limbs; palpitation of the heart; faintness which is relieved by lying down; insomnia and vertigo, especially on raising the head.

Arsenicum.—This is adapted to cases where the blood has become watery, or adapted as in malarial fever, chronic quininism and chlorosis. It is also suited to cases aggravated by injudicious use of ferrum. There is great prostration, with rapid sinking of the vital forces; hammering headache; coldness of the extremities; restlessness; bloating of the hands, feet and face; thirst for small quantities of water; nausea, tendency to syncope on raising the head and vertigo, with vanishing of the senses; chilliness and mental depression.

Ferrum.—This should be remembered in cerebral anæmia dependent upon hydræmia, as shown by the great pallor of the face, lips and buccal mucous membrane. There is bellows-sound of the heart; the muscles are flabby and weak, with beating headache. Slight exertion produces shortness of breath and exhaustion. This remedy is generally best adapted to chlorotic cases and to those resulting from passive hemorrhage.

Nux vomica.—This should be studied in anæmia from mental exhaustion or over-work, as in students and professional people; also the anæmia resulting from debauchery and over-stimulation, the long-continued use of ardent spirits, late hours and highly-seasoned food. Especially indicated in all cases where

there is gastric irritation, indigestion or constipation. Indicated with nausea and vomiting, and frequent eructations of sour-smelling fluids or foods, insomnia, muscular twitchings and trembling of the hands, with frequent cramps.

Zincum.—This is well adapted to old chronic cases, especially when caused by the abuse of potassium bromide. There is great mental and bodily depression, cold extremities, twitching of the muscles, with paralytic weakness, and aching in the forehead after reading, writing or study; loss of memory and restlessness at night, with frightful dreams.

Zincum phos., brom. and pic.—The indications for the employment of these remedies are brain-fag of business men, teachers and professional men, who have become pale, haggard, weak and sleepless from over-work, worry and prolonged mental exertion.

Secale cor.—This should be studied when there is anæmia complicated with diarrhœa or metrorrhagia, or with spasms and convulsions, and when there is small intermitting pulse; tinnitus aurium, delirium, loss of consciousness, with numbness and coldness of the limbs.

Sulphur.—This should be remembered in chronic cases, occurring in cold, phlegmatic, scrofulous constitutions; also when preceded or accompanied by eruptions, or when caused by their suppression; also as an intercurrent remedy, or when indicated medicines fail to produce any lasting benefit.

CEREBRAL HYPERÆMIA.

This is a condition in which there is an increased amount of blood in the cerebral blood vessels. It may be active or passive. Active hyperæmia may be caused by an over-acting left ventricle; by sudden contraction of the vessels elsewhere, and by isolation; it may be part of a general plethoric condition; and it occurs as the first stage of the inflammatory process.

Passive hyperæmia is a result of cardiac insufficiency, of venous obstruction as a result of pressure from without or of pulmonary disease.

Symptoms.—These may be indefinite. There is usually a dull headache, a sense of fullness of the head, vertigo, mental torpor, derangement of sleep, a disinclination to activity, flashes of light before the eyes, and tinnitus aurium. The countenance may be flushed; the vessels of the conjunctiva are injected. There may be transient loss of consciousness. Convulsions are uncommon.

Treatment.—This depends upon the correcting of the cause. Some cases require rest, others moderate exercise. The remedies that have been of most service are:

Glonoïn.—This should be studied when there is acute active congestion of the brain, with strong beating of the carotid and temporal arteries, contracted pupils and very rapid pulse. There is throbbing headache, with flashes of light before the eyes; tinnitus

aurium; fullness in the forehead and vertex, with mental dullness, vertigo with impaired vision; great restlessness and impatience in mild cases. It should be studied in apoplectic and epileptiform cases, especially when caused by exposure to the sun's heat or by menstrual suppression.

Belladonna.—This should be remembered in acute cases attended by delirium or by spasms and convulsions; when there is redness of the face and eyes, with morbid vigilance and sensitiveness to light and noise. There is stiffness of the tongue and neck; throbbing headache; great mental excitement, with double vision; the children start suddenly when falling asleep.

Hyoscyamus.—This should be thought of when there is dark red face and sparkling eyes; violent delirium; lascivious mania, with epileptiform attacks; muscular twitchings; great nervousness; double vision and grating of the teeth. Acute attacks in which the nervous and mental phenomena predominate.

Stramonium.—This remedy is indicated in cases similar to those for which *hyoscyamus* is recommended, the nervous excitement being extreme, and the delirium of the most active and furious character. The patient laughs, sings and gesticulates in rapid succession, or shows great fright, terror or rage. In milder cases, vertigo and temporary blindness are special indications.

Amyl nitrite.—This should be remembered when there is throbbing of the cerebral vessels, with sense of heat and fullness in the head; buzzing and throbbing

in the ears and protrusion of the eyes, with flushing of the face; visible pulsation of the carotids, with violent action. At the very beginning of active cerebral hyperæmia.

Opium.—This is to be studied in apoplectic cases. The face is of a dark red color and bloated; the pulse is slow. There is drowsiness, with confusion of mind, and sense of heaviness and pressure within the head. There is coldness of the hands and feet, with mumbling delirium. It is suited to the passive and apoplectic forms, and also such as arise from fright or debauchery.

CEREBRITIS.

Inflammation of the brain structure may be acute or chronic, localized or diffused. It may be the result of traumatism, ptomain poisoning, alcohol, nicotin, lead or gas poisoning, or an infectious disease.

Pathology.—Any portion of the brain may be involved. A point of frequent occurrence is in the gray matter; that is in relation to the third and fourth ventricles and the aqueduct of Sylvius.

Symptoms.—As a rule, the disease begins acutely. There is either somnolence or coma from the onset, but this may be preceded by a stage of irritable jactitation resembling the onset of delirium tremens. Headache, vertigo, vomiting, and painful contractions of the muscles of the back of the neck are common. The pulse-rate is increased, as is also the respiratory frequency. As a rule, the temperature is normal or even subnormal. Rarely fever is encountered. Incontinence of urine occurs in the terminal stages of the disease. Loss of appetite and constipation are common.

Duration.—The duration of the disease is from ten to fourteen days.

Prognosis.—The prognosis is unfavorable, few cases terminating in recovery.

Treatment.—Rest in bed is most important. The patient is confined to a dark room, and absolute quiet is essential. The head should be elevated and cold

applications applied. The bowels should be kept open. The diet should be nutritious and easily digested. The patient should have fresh air. The management of these cases and the therapeutics depend upon the cause of the individual case. During the early stages there is often a condition of hyperæmia of the brain present, which requires much the same remedies as cerebral hyperæmia.

ABSCESS OF THE BRAIN.

Synonyms.—Cerebritis; Suppurative Encephalitis.

Definition.—This is a circumscribed collection of pus within the brain tissue, or between the meninges and the brain.

Etiology.—It is usually secondary to septic disease of the ear, nose, bones of the skull, and the lungs. It is more common in males than in females and in those from twenty to forty years of age.

Pathology.—The abscess may vary greatly in size; there may be several. If it is acute the pus will show some blood, if it is chronic the pus is often thin and watery. While it may be located in various parts, it is most common in the right temporosphenoidal lobe.

Symptoms.—These may appear slowly or rapidly. The leading symptoms are severe headache with vertigo, nausea and vomiting, mental apathy and inflammation of the optic nerve, rigor and fever. In many cases the pulse is very slow and it is irregular. The breath is usually foul, the tongue is coated and the bowels are constipated. The patient becomes drowsy and apathetic and coma appears in fatal cases before death. Should the abscess rupture, meningitis is established, aphasia both motor and sensory may appear, and blood count shows leucocytosis.

Diagnosis.—This is based upon the presence of the causes of abscess, the irregular chills and the presence of febrile symptoms. Cerebral tumors produce a

more severe type of headache and optic neuritis than does abscess. There are more cranial nerves involved in meningitis than in abscess and the latter is of a slower clinical history.

Prognosis.—Many of the cases are fatal.

Treatment.—As early as possible the case should receive surgical attention and the pus be evacuated. The ideal would be prophylactic.

TUMORS OF THE BRAIN AND ITS MEMBRANES.

Of these the most common is the tuberculoma, the glioma, sarcomata, carcinomata and gummata, and the cystic tumors, as the echinococcus, cysticercus cellulosæ. Those that develop in the brain are the lipomata, myxomata, fibromata, osteomata, cholesteatomata and psammomata. The gliomata and psammomata develop only in nerve tissue.

Etiology.—There is frequently a history of traumatism in these cases. During adult life gummata, sarcomata, gliomata and parasitic tumors are the most common. Tuberculous growths are the most common in youth, and carcinomata in old age.

The base of the brain is the seat of tuberculous growths, the pons and hemispheres of gummata; the cerebral surfaces and the ventricles show the development of cysts, in the pineal gland, psammomata develop. Gliomata develop in the retina and spread to the cerebrum. Mucous and fibrous tumors occur in the sheaths of the vessels, while carcinoma are found in the hemispheres.

Symptoms.—These are the result of pressure and vary according to the location of the growth. Headache appears early and is a most common symptom. There are periods of great exacerbations and they may intermit. The headache may be attended with nausea, or the nausea may develop independently. The vom-

iting may be projectile in character. Absent mindedness, drowsiness and mental irritability are common. The running together of the syllables may occur.

Epileptiform or apoplectiform attacks and choreiform twitching may be present. A blood vessel may rupture near a tumor and apoplexy result. Optic neuritis is an important symptom from a diagnostic point of view. The disc may be choked. Paræsthesia in some form is frequently present. Should the tumor involve the floor of the fourth ventricle polyuria or glycosuria may develop. The appetite and nutrition may be affected.

Vertigo due to a disturbance of the cerebral circulation may develop. If it is constant and severe it is probable that the growth involves the cerebellum. Bradycardia may be noted. The temperature may be normal or subnormal. If fever is present it is the result of a complication either dependent upon meningitis or cerebritis. Optic neuritis is present in many cases. The ophthalmoscope should be used to establish its presence.

Cheyne-Stokes respiration, dyspnœa, yawning or hiccough may be present. Should the growth involve the cerebellum, inco-ordination may be complained of.

It is evident that the symptoms will vary according to the location of the tumor. If it is located in the prefrontal region motor or sensory disturbances will be noted, and exophthalmos upon the affected side, in certain cases.

If it is located in the parieto-occipital lobe word blindness and mind blindness are present.

If it is located in the temporal lobe there may be no symptoms, while in other cases there is word deafness.

If it is located in the basal ganglia, hemianesthesia and hemiplegia may be present, as well as optic neuritis and a disturbance of the cutaneous and muscular ganglia. Should the tumor involve the crura cerebri, ocular symptoms, as nystagmus and loss of pupil reflexes, are observed. There may be paralysis of the third nerve on one side and hemiplegia on the opposite side of the body.

If the pons and the third nerve are involved, the limbs, face and tongue of the opposite side are paralyzed. If the sixth nerve is involved there will be internal strabismus. If the seventh nerve is involved there will be facial paralysis and deafness. If the auditory nerve is involved there is deafness. If the tumor involves the medulla, hemiplegia and paralysis result. There is frequently vomiting and disturbance of respiration and heart's action. There may be difficulty in swallowing and retraction of the head.

Diagnosis.—This is dependent upon a proper interpretation of the symptoms and cerebral localization.

Other conditions may be attended with vertigo, headache, nausea, vomiting, optic neuritis and convulsions.

CEREBRAL TUMORS.

1. The urine may be increased in quantity and contain albumin.
2. There is no edema, hypertrophy of the heart, or an increased arterial tension.
3. Palsies may be present.

CHRONIC NEPHRITIS.

1. The urine contains casts as well as albumin.
2. These may all be present.
3. These are absent.

CEREBRAL TUMORS.

1. The headache is severe.
2. Optic neuritis develops slowly.
3. The convulsions, palsies and symptoms are progressive.

ANÆMIA.

1. It is not severe.
2. It is more rapid in its development.
3. The pallor, edema, breathlessness yield to treatment.

EPILEPTIFORM CONVULSIONS OF CEREBRAL TUMORS.

1. The convulsions are apt to be localized.
2. There are symptoms of tumor, vertigo, headache, vomiting, optic neuritis and palsies.

CEREBRO SPINAL SCLEROSIS.

1. Are general.
2. These are not present.

CEREBRAL TUMORS.

1. There may be a jerky inco-ordination present.
2. The speech may be normal, but this depends upon the location of the tumor.
3. The reflexes may be normal.

CEREBRO-SPINAL SCLEROSIS.

1. There is a jerky inco-ordination and nystagmus present.
2. The speech is slow, scanning and syllabic, parts of words are dropped.
3. The reflexes are exaggerated.

Prognosis.—This is not good except in cases dependent upon syphilis. Surgical means may be of service.

Treatment.—The patient should be given rest, the habits inquired into, and if defective corrected. All cause of excitement, both mental and physical, should be avoided. The diet should be nutritious, but non-stimulating. The bowels should be kept regulated. If the tumor is syphilitic in character, remedies

that will correct the condition should be prescribed. Those tumors that are not amenable to medical treatment should be considered from a surgical standpoint. Firm growths, as fibroma, that develop slowly, may be removed; cysts and abscesses may be evacuated and their sacs removed.

In some cases the contractility of the paralyzed muscles may be benefited by the use of a galvanic current. The current should be such that it will cause no pain, nor should the tumor be in the course of the current. The anæmia, hyperæmia, hemorrhage, inflammation, epilepsy and atrophy that develop in certain cases should be corrected if possible. The selection of a remedy must be based upon the finding in the case. *Contum maculatum* and *calcareæ fluorica* should be remembered when the growth is fibroid or fibro-scirrhous. *Arnica montana* and *hamamelis* in hematomata. *Scpia* and *thuja* in fungoid growths. *Graphites* and *baryta* in atheromatous conditions.

In some cases the pain in the head is so severe that narcotics and hypnotics may be required to give the patient and attendant rest. The *hyoscine hydrobromate* is often of service, as is some form of the bromides. *Opium* or one of its derivatives may be of service, but should be a last resort. *Chloral hydrate* does not act well in these cases.

CEREBRAL ANEURISM.

The middle cerebral artery on the left side of the brain is the vessel most frequently involved. Next in frequency is the basilar artery and next the internal carotid.

Etiology.—Arteriosclerosis is the most common cause. It may be due to embolism, syphilis or traumatism. It is more common in men past the middle of life than in women. Violent exertion and fright may be the exciting cause.

Pathology.—It varies in size from a millet seed to that of a hen's egg. It is usually sacculated in shape, but the fusiform and cylindric have been observed. The sac may rupture and an extravasation of the blood into the brain tissue result.

Symptoms.—These vary according to the exciting causes. If dependent upon exertion or fright that causes violent heart action, the subject is taken with violent pain in the head which is pulsating in character, and which is accompanied with vertigo, dizziness and tinnitus aurium. The pain in the head is made worse from exertion or straining, as from stool. In certain cases convulsions and vomiting are met with; apopleciform attacks may occur, as a result of a minute hemorrhage or the dilation of the vessel. The sensation of pulsations through the brain is common as well as the noises of a surging character, as if a hydrant of water was passing through the brain. In some cases

a bruit may be detected by means of the stethoscope over the posterior portion of the skull. This may be such as to determine the point of the aneurism.

Diagnosis.—This is based upon the symptoms as outlined occurring in a subject past the meridian of life, with hardened arteries.

Prognosis.—This should be guarded. The more acute symptoms may subside, but complete rupture of the blood vessel may occur at any time.

Treatment.—Those with arteriosclerosis and high tension should avoid over-exertion so far as possible. They should avoid excesses and live quietly. The diet should be nourishing but non-stimulating and everything that will in any way increase the arterial tension should be avoided. In the dietetic management of these cases the object is to reduce the volume of the blood and to increase its density and coagulability. To accomplish the latter, gelatine has been administered, but it is doubtful how much influence it exerts when it has been digested and absorbed. Fluids should be restricted as much as is possible. The patient should if possible reside in a locality with mild, even temperature. If this is not possible he should be protected from chilling of the skin. If the aneurism can be located, the middle carotid may be ligated. If the basilar artery is the one involved the ligation of the vertebral should be carefully considered.

Acidulated drinks, as buttermilk, lemonade, a diet in which there is but little salt, may be employed and will render it easier for the patient.

If the symptoms appear suddenly, with severe pain and surging through the head, the patient should be placed in a semi-erect posture and an ice cap applied to the head. The feet should be put in a vessel containing water as hot as the patient can endure it; the degree of heat of the water should be increased. The same should be applied to the hands. Mustard may be put into the water.

A hypodermic of nitroglycerine is beneficial, as it reduces the arterial tension. This may be repeated as needed, or the nitrate of soda in two-grain doses or the iodide of soda in five-grain doses may be employed to the same end.

In those cases in which the pain is severe one-eighth or one-fourth of a grain of morphine may be administered hypodermatically.

In some cases *aconite* may be indicated by the heart's action and the restlessness. As the more acute symptoms subside *belladonna* may be required.

The remedies that meet the general symptoms and should be studied are *baryta carbonica* and *baryta iodide*, *ferrum phosphoricum* and *calcarca fluorica*.

PROGRESSIVE BULBAR PARALYSIS.

Synonyms.—Duchenne's Disease; Chronic Bulbar Paralysis; Labioglossolaryngeal Paralysis.

Definition.—This is a gradual progressive disease of middle life characterized by impairment of speech, phonation, mastication, deglutition and muscular atrophy.

Etiology.—This disease is frequently observed in those who have suffered from lead poisoning, diphtheria, syphilis, traumatism and exposure to cold. It is most common in men past forty years of age.

Pathology.—There is pronounced atrophy of the root of the hypoglossal, glossopharyngeal, vagus, facial, spinal accessory and fifth nerves. They are thinned and of a grayish-red color. There are also changes in the cord and in the medulla oblongata. The tip of the tongue frequently shows marked atrophy, but this is also observed in the lips, tongue, palate, muscles of the larynx, neck, shoulders and arms.

Symptoms.—While there may be periods of remission, the symptoms are progressive. The tongue is usually the first to show the disease, and the linguals are not distinctly pronounced. Next the lips show changes and the labials are indistinctly pronounced, and the ability to whistle is lost. The saliva runs from the mouth. The muscles of the pharynx and palate are affected, speech is impossible, the face is motionless and expressionless. He is unable to swallow.

The muscles of the face are atrophied. The throat reflexes are gradually lost, so that particles of food pass into the larynx and trachea. Apart from this there is but little sensory disturbance. The electric reaction of the muscles may remain normal. The mind is clear but the patient is apt to be emotionless. Progressive muscular atrophy is often present. The duration of the disease is from a few months to several years.

Prognosis.—This is unfavorable. Death results from inspiration-pneumonia, broncho-pneumonia, failure of respiration and inanition.

Treatment.—The general health and nutrition of the patient should be maintained. As soon as any difficulty in swallowing appears the patient should be fed by means of a stomach tube. Should the tissue show irritation from the frequent use of the stomach tube rectal alimentation should be employed. The diet should be bland, nutritious and liquid.

Electricity is of some service—faradization of the diseased muscles, and galvanism of the neck and spine.

Vibration over the affected parts may have some influence if persisted in. Remedies have not much influence over the condition. Those given under myelitis and tabes should be studied.

THROMBOSIS OF THE VENOUS SINUSES OF THE BRAIN.

Etiology.—These may be either of a primary or secondary form. The former is observed in weak, poorly nourished patients who are suffering from tuberculosis, cancer, anæmia or prolonged intestinal disturbances.

The secondary form is observed as a result of a suppurative process of the internal ear or mastoid. It may result from a fracture of the skull.

Symptoms.—On account of the primary condition the primary form may give rise to but few symptoms. When present they are nausea, vomiting, headache and a slowly appearing coma. Paralysis and pupillary disturbances are seldom present.

In the secondary form there is occipital headache which is excruciating. A chill and rise of temperature is early. The patient may become delirious or be partially comatous. A convulsion may develop and symptoms of meningeal inflammation. There is present the etiological factor in the case.

Diagnosis.—This is based upon the etiological factor, and the presence of the symptoms of thrombosis.

Prognosis.—This is unfavorable. In the primary form, if the treatment is devoted to the early condition, the complication will not arise. In the secondary form septic emboli are carried to various parts, and

establish various septic points. Septic pneumonia is common.

Treatment.—In the primary form the attention should be devoted to the primary disease. In the secondary form attention must be devoted to surgical means, and to the removal of the septic point. Following this the case requires careful feeding and therapeutics, that the general health may be improved.

SPINAL ANÆMIA.

Definition.—This is a condition in which the amount of blood in the vessels of the spinal cord and its membranes is so deficient as to impair the function of the cord.

Symptoms.—Spinal anæmia may be distinguished from spinal hyperæmia by the fact that the symptoms instead of being aggravated by the recumbent position are always ameliorated by it. It is also distinguished by the fact that it is not progressive, and when the condition is accompanied by paralysis it is usually preceded by bladder involvement. Anæmia of the antero-lateral columns is distinguished from that of the posterior columns by the absence of any considerable disturbance of sensibility and by the presence of well-marked, though incomplete paraplegia.

Treatment.—These patients should have good nutritious food, easily digested, such as milk, eggs, beef, etc., and an abundance of fresh air and sunshine. A change of climate and scenery, an ocean voyage, pleasant company, and agreeable occupation are often highly beneficial. Every source of peripheral irritation to which the patient is exposed, should be removed or guarded against. Whatever benefits the general health will benefit the spine in these cases. Auto-intoxication, toxic agents and conditions leading to anæmia should be avoided. General measures as intermittent heat, friction, massage to the spinal area, vibration and all measures that induce local hyperæmia are of service.

Strychnia phos. is one of the best remedies we have for anæmia of the cord and paralysis from exhaustion of the reflex motor power of the spinal nerve-cells.

Nux vomica should be studied when there is great debility of the nervous system with partial paralysis, reflex paralysis and paralysis from nervous exhaustion, pain as from a bruise in the small of the back, with weariness and heaviness in the lower extremities, torpor of the liver and bowels, and paralysis of the bladder.

Phosphorus when there is bruised feeling in the back and limbs, great heaviness and weariness from the least exertion, and spinal neurasthenia with extreme mental and physical prostration.

Kali phos. should be remembered in cases of spinal anæmia from exhausting diseases, and reflex paraplegia, with burning pains aggravated by rest, but worse on first moving about.

Calcarea phos. is often indicated when there is coldness and weakness of the lower extremities from defective circulation of blood in them, and nervous prostration with great depression of spirits; the face pale and wan, sore bruised feeling in the back, with desire to lie down upon it.

China should be considered when there is paralysis due to general anæmia or loss of vital fluids, spinal anæmia following severe and exhausting illness, with neurasthenia spinalis induced by over-exertion, either bodily or mental, and nervous trembling of the lower limbs.

Erythroxylon coca is indicated when there is sleep-

lessness and disinclination to work or move, mental depression, with anxiety and palpitation of the heart, loss of appetite, constipation with abdominal distension, compression of breathing, arising from debility, fainting fits from nervous weakness, with coldness of the extremities and general debility, the least exertion being attended by fatigue.

Arsenicum is employed when there is a paretic condition of the lower limbs, especially when associated with general anæmia. There is constant disposition to lie down, and sensation in the small of the back; paralytic weakness preceded or accompanied by excessive or watery alvine discharges, with trembling of the limbs from debility; restlessness, especially at night, and thirst for small quantities of water.

SPINAL HYPERÆMIA.

Definition.—This is a local or general excess of blood in the spinal cord and its membranes.

Symptoms.—Hyperæmia of the cord is characterized by more or less anæsthesia or numbness, preceded by sharp shooting pains often localized in the cord or radiating outward to the peripheral nerve. Spinal anæmia causes hyperæsthesia, which is often excessive. The former is always aggravated by the recumbent position, while the latter is ameliorated by it. Myelitis may be distinguished from spinal hyperæmia by the greater intensity of the symptoms, and spinal meningitis by the severity of the symptoms, by the pains produced by movement of the paralyzed limbs, and by the tonic contraction of the muscles, especially those of the back.

Treatment.—The hot douche is one of the best local applications in this disease. The water at a temperature of about 100° F. should be made to fall from a height of two or three feet over the affected part of the cord for a few minutes every day. Very satisfactory results sometimes follow the systematic administration of the constant current of electricity, passing it through the affected portion of the spine daily for a few minutes at a time, employing as strong a current as the patient can conveniently bear.

Belladonna should be studied when there is spinal hyperæmia attended by severe pains in the back, which are increased by lying down.

Gelsemium is indicated in cases that are attended with dull, aching pains in the upper part of the spine; worse after lying down, with pains shooting out from the spine to other parts, and sometimes in the opposite direction, causing the patient to cry out.

Aconite is indicated in those with paralysis from congestion of the cord, with crampy pain in hand and arm; painful bruised sensation in the spine, attended by stiffness and lameness of the back, and trembling weakness in the lower limbs.

Colchicum should be used in cases of spinal hyperæmia caused by suppressed perspiration, or by getting the feet wet; numbness of the limbs, with pricking, twitching pains in the limbs and side, with sensation of lameness.

Rhododendron is indicated when there is paralytic weakness during rest, with heavy, weak feeling and formication in back and limbs, worse when at rest, especially when lying down.

Arnica is indicated in spinal congestion caused by over-exertion, strain or mechanical injury, also when produced by the cold stage of intermittent fever.

Lathyrus sativus is used when there is numbness followed by paralysis of the lower extremities; a band feeling around the body, and the patient is unable to stand or take a step, sometimes unable to distinguish one limb from the other.

ACUTE MYELITIS.

Definition.—This is an acute inflammation of the spinal cord. It may extend longitudinally and may involve the entire transverse area.

Etiology.—It may result from an acute disease of the spinal cord, variation of the temperature and exposure to cold. Gout, rheumatism, traumatism, septic conditions as from the puerperal period, abscess, caries of the spine, syphilis and metallic poisons have each been held responsible for certain cases. Persons employed as cabmen, drivers, engineers and bakers are thought to be especially subject to it.

Pathology.—The cord shows inflammation, the membranes surrounding it are congested, and upon section the white and gray matter are with difficulty determined. The consistency of the affected parts is reduced. It may be extravasated with blood showing red softened areas. The entire cord may be affected showing a diffused myelitis. If the condition persists, fatty degeneration and a condition of yellow and white softening results. The ganglion cells may be irregular in shape and swollen, the nucleus may undergo division.

Symptoms.—These develop with a variable degree of abruptness and febrile manifestation. There is a pain referred to the back. There soon develops a loss of sensation and motion in the affected parts. A girdle-like sensation and a zone of hyperæsthesia ap-

pear corresponding to the distribution of the nerves given off at the upper limit of the inflammation. Trophic changes, wasting and the formation of bed-sores may take place. The reflexes of the nerves arising from the inflamed area are lost. The control of the sphincters is lost. After the subsidence of the acute symptoms some improvement may take place slowly, especially in regard to sensation. Contractures may take place, cystitis and pyelonephritis may develop. Pulmonic and renal complications are common and amyloid degenerations may develop.

Diagnosis.—This is dependent upon the sudden onset attended with fever, paraplegia, paralysis of the sphincters, loss of sensation, trophic changes and the absence of pain in the muscles.

ACUTE MYELITIS.

1. Pain and hyperæsthesia are slight, transient and circumscribed.
2. There are no muscular spasms.
3. Wasting palsy, anæsthesia and derangement of the sphincters appear.

ACUTE MYELITIS.

1. Onset rather abrupt.
2. Initial fever pronounced.
3. Myelitis soon develops following hemorrhage, and the two become impossible to distinguish.

ACUTE SPINAL MENINGITIS.

1. Pain, hyperæsthesia and muscular spasms are followed by anæsthesia and palsy.
2. There are muscular spasms.
3. These are not present.

SPINAL HEMORRHAGE.

1. Onset more abrupt.
2. Initial fever not as abrupt.
3. The same.

Prognosis.—Recovery is rare and more or less paraplegia usually remains, and secondary changes develop in the cord. The greater the amount of trophic changes the more unfavorable the prognosis.

Treatment.—These patients should be kept absolutely quiet, and a bed pan used that they may not have to arise for any cause. Precautions should be exercised that the urine is not retained. To this end the catheter should be used with due care as regards cleanliness. A warm climate favors these cases. The bed should be kept smooth and in some cases air or water mattress should be used.

During the acute stages cold applications over the affected portion are of service. If after twelve to fifteen hours the disease is still advancing and the cold applications are not controlling the condition, resort may be made to spinal application in the form of an irritant, as mustard stirred into boiling castor oil till a smooth paste is made. This applied along the spine, often answers well, and does not blister the parts. Following the acute stage electricity will be of some service, one pole over the sternum and the other over the seat of the lesion. Massage and light exercise are also of benefit.

The diet during the acute stage should consist of milk, broth, malted milk, later eggs, rice, toast, farina, blanc mange, and later a full diet.

Aconitum napellus is indicated when the condition has been induced by sudden changes of the temperature, and the congestion appears just as suddenly. The

pulse is full and bounding, and there is anguish of both the mind and body. In these cases use the 3x in water and give a dose every half hour at first.

Veratrum viride is of great service when the arterial excitement is pronounced, but the nervous excitement is not as great as under *aconite*.

Gelsemium should be studied when there are early indications of paresis and the patient is exhausted and drowsy.

Hypericum and *arnica* should be studied in those cases that are dependent upon traumatism, when there is more or less soreness complained of.

Rhus toxicodendron, *dulcamara* and *bellis* should be studied and compared if the disease is the result of exposure to dampness and cold.

Strychninum in one of its combinations, *sulphur* and *psorinum* should be remembered when the condition is becoming chronic and reaction is deficient.

Lathyrus sativus should be studied for the subsequent paraplegia.

Plumbum metallicum, *phosphorus*, *zincum*, *arsenicum* have each been of service in the management of certain cases.

CHRONIC MYELITIS.

Definition.—This is a chronic sclerosis of the spinal cord that frequently follows an acute or subacute form.

Etiology.—This most frequently follows an acute attack. It may arise from traumatism, hemorrhage, tumors or caries of the vertebræ in which injury to the cord has resulted. Exposure is a rare cause. It is more common in men than in women.

Pathology.—Sclerosis is the most common change. The nerve cells in the gray matter become atrophied. Many of them as well as nerve fibres disappear, while the walls of the blood vessels are thickened. Both the ascending and descending tracts are involved in the sclerotic changes. The ascending degeneration is noticed in the posterior columns extending to the medulla. Any or all the nerve tracts may show such changes.

Symptoms.—These vary with the distribution and location of the disease. The first symptoms noticed are undue readiness to muscular fatigue, this gradually passes to weakness and actual palsy. Sensation is deranged and paræsthesia is common; girdle pain appears. The reflexes are exaggerated. The muscles waste and present quantitatively altered electric reactions, while later they suffer qualitative changes. The sphincters lose their power. Bed-sores, cystitis, paralysis of the sphincters appear late in the disease.

Diagnosis.—This is frequently difficult to make, and is often made by exclusion only.

CHRONIC MYELITIS.

1. The symptoms are irregular in their distribution.
2. Sensory symptoms are a leading feature.
3. Exaggeration of reflexes and spasm characterize myelitis.
4. Not present.

PROGRESSIVE MUSCULAR ATROPHY.

1. Are more symmetrical.
2. Not marked.
3. Not so prominent.
4. Fibrillary muscular contractions and heightened mechanical irritability are present.

CHRONIC MYELITIS.

1. May involve all four extremities.
2. Pain may not be constant.

SPINAL PACHYMEINGITIS.

1. It is most commonly cervical, and limited to the upper extremities.
2. Pain is a more constant manifestation.

CHRONIC MYELITIS.

1. Sensation is deranged.
2. There may be a girdle sensation.
3. Power of sphincters may be lost.

LATERAL SCLEROSIS.

1. Sensation is not deranged.
2. There is no girdle sensation.
3. The action of the sphincters is unimpaired.

CHRONIC MYELITIS.

1. The symptoms are slow and gradual in their onset.
2. They are progressive.
3. The symptoms are irregular in their distribution, and the temperature remains normal.

ACUTE MYELITIS.

1. The symptoms appear rapidly.
2. They may be improved following the acute symptoms.
3. Are more regular, and are attended with fever.

Prognosis.—The disease is incurable after the symptoms have once developed. The patient may live for years and finally die of cystitis, exhaustion or decubitus.

Treatment.—These cases should have absolute rest and quiet in bed. The bed pan should be employed in order that the patient may not arise for any cause. Cleanliness should be thorough and the sacrum and scrotum should be protected from the urine. The bed clothing should be kept free from wrinkles. A water or air bed mattress should be used. A water or air cushion should be used to protect the lower portion of the spine while the patient is sitting up. Counter irritation should be avoided, especially during the active state. A galvanic current applied to the spine, the positive pole above the upper border of the lesion, the negative pole at the lower end of the spine, is often of service. From three to five milliampères may be used three times a day for ten minutes. In the chronic form the painting of the spine once a day with a solution composed of equal parts of aconite and tincture of iodine is of service. This may be continued for ten days to two weeks, when it may be stopped and dry cupping resorted to. Spinal extension will also be found of service in many of these cases. Later in the case when irritation has subsided the faradic current may be employed. Strychnia sulph. 1/60 of a grain, hypodermically, is also of service.

POSTERIOR SPINAL SCLEROSIS.

Synonyms.—Locomotor ataxia; Tabes dorsalis.

Definition.—This is a disease of the spinal cord characterized by progressive changes, sharp lancinating pain, inco-ordination and paralysis.

Etiology.—It is a disease of middle life, particularly of the male sex; in 90 per cent. of cases there is a history of syphilis. Sexual excesses, traumatism and alcoholism are frequently predisposing conditions.

Pathology.—The primary lesions are in the tracts of Lissauer, Goll and Burdach, and the dorsalis roots. The extent of the sclerosis is in direct proportion to the duration of the disease. As the case advances the fasciculus of Goll shows pronounced changes. There is sclerosis of posterior columns and nerve roots, with degeneration of the peripheral and sensory nerves. At times degenerative lesions of the cerebrum, optic nerves and cerebellum and even other sensory nerves have shown degenerative changes. There is marked shrinkage and thickening of the posterior column, especially in the lower lumbar and dorsal regions and thinning of the posterior nerve roots.

Symptoms.—These are divided into the pretaxic stage when there are lightning-like pains, which are usually in the extremities. The pupils react to accommodation, but not to light (Argyll-Robertson pupil). The pupil may be small and is called pin point. There may be difficulty in micturition and loss of tendon re-

flexes. The loss of the knee-jerk in tabes is known as Westphal's sign. During the second stage the ataxic symptoms appear. There is now a lack of co-ordination and unsteadiness upon standing or walking, especially while the eyes are closed. When in the erect posture with the heels close together and the eyes closed he sways to and fro (Romberg's symptom). As the condition advances he must have support to enable him to stand. The finer movements of the hands are lost, and he cannot touch the tip of the nose with the finger if the eyes are closed. Various sensations as the pricking of pins, tingling and numbness are noticed. While walking he feels as if walking upon carpet, cushions or a padded floor. A sensation as of a girdle pain appears about the body. As the third stage is reached there is an exaggeration of all the symptoms, and the patient becomes helpless, and paralysis of all the sphincters develops. Bed-sores, cystitis and inter-current disease develop.

Early in the history of many of the cases there appears a sensation of fatigue following exercise, and visceral crises which consist in a violent and sudden disturbance of the function of an organ for which no definite reason can be assigned. Of these the gastric crisis is the most frequent. There is pain in the epigastrium and severe uncontrollable vomiting. These symptoms may be followed in a day or two by nervous depression and collapse, after which the patient again appears well. Intestinal crisis may be associated with gastric crisis or appear independently of it. A similar

condition may involve the kidney, urethra and bladder. The sexual function may be increased or diminished. Laryngeal crisis is indicated by a paroxysmal cough and dyspnœa. There are various disturbances of the heart. There are trophic lesions about the joints (Charcot's joints, arthropathies), any one of which may be affected. The joint enlarges quickly, and upon examination, shows effusion, which may remain for an indefinite period. The bones are easily fractured. The tendons rupture easily. Perforating ulcer of the foot is common, and gangrene may develop.

There is impairment of co-ordination, especially when the guidance of vision is removed. The shooting pain in the extremities, the girdle sensation, the anæsthesia and other abnormal sensations; the abolition of the deep reflexes by primary exaggeration and secondary loss of superficial reflexes; the primary increase of the sexual desire and secondary impairment; the derangement of the sphincters as manifested by a retention or incontinence of urine; the narrow pupil; the crises involving the different viscera; the trophic change about the joint; the rendering of the bones brittle and easily fractured; the perforating ulcer; hyperextensibility of the joint, especially the knee and hip, and muscular wasting during the last stage, form a group of symptoms that is characteristic. The mind is seldom affected, but in exceptional cases general paralysis known as tabes of the brain may develop.

The course of the disease is slow, it may develop rapidly, but these cases are the exceptions.

Diagnosis.—In a well marked case this is easy, when a combination of the following symptoms is present :

POSTERIOR SPINAL SCLEROSIS.

1. These are permanent.
2. Unyielding in its course.
3. There is usually a girdle sensation.
4. Muscular wasting and weakness result only after a long period of inactivity.
5. Muscles are not tender.
6. Patient raises the foot high and brings it down with a stamp.

MULTIPLE NEURITIS.

1. Unsteady gait and loss of sensation, sharp pains may appear and disappear.
2. May be recovered from.
3. There is no girdle sensation.
4. These appear early.
5. There are tender points in the course of the nerves.
6. The foot drop necessitates raising foot high enough to avoid floor.

POSTERIOR SPINAL SCLEROSIS.

1. Have sharp darting pains with loss of knee jerk and indications of involvement of cerebral nerves.
2. Muscles waste late.
3. Co-ordination impaired.

LUMBAR PACHYMEINGITIS.

1. Have pains, but not indications of involvement of cerebral nerves.
2. Muscles waste early.
3. Not impaired.

Prognosis.—Cure is improbable. The duration of life is not always shortened, and death may take place at any time.

Treatment.—But little can be accomplished in the way of prophylaxis apart from the thorough treatment of every case of syphilis coming under observation. The physician should explain to every patient the

importance of treatment for a prolonged period, and the dangers attending exposure to cold and dampness. Care should be exercised that the patient does not become introspective and hypochondriacal. If possible, he should continue at his usual vocation, as any attempt on the part of the physician to change this will arouse suspicion in the mind of the patient.

All excesses on the part of the patient should be avoided, and especially sexual excesses; alcohol and tobacco should be reduced to a minimum if the patient uses them. Muscular strain should be avoided, as over-strain does harm to the changes in the posterior nerve roots. Proper exercise is of service in overcoming the inco-ordination. These exercises should be given by a competent attendant, and for a period not to exceed five minutes. They should be such exercises as will bring into use definite muscles and centers. The exercise differs according as it is the arm or leg that it is desired to influence. For the leg they are such as will cause extension, flexion, adduction and abduction. These movements are made while the patient is lying on his back, later while sitting and then while standing. With the upper extremities it is such that the larger muscles are first brought into action, then one group of muscles after another, till the muscles of the fingers are finally reached. Apparatus for the different exercises can be procured, and then use should be directed by one who is thoroughly trained. Massage and gymnastics are beneficial, but both should be given only by one competent and who understands the disease thoroughly.

Balneotherapy and hydrotherapy are of service in the great majority of cases, and yet a case will be met with occasionally, where from some individual peculiarity, they do not answer well. There is no doubt but that the warm full bath has rendered excellent service in many cases in relieving the pain and relaxing the muscles. This subject like the former requires expert attention, but some one of the many types of baths will be of service.

The suspension treatment given by means of a Sayre apparatus has been praised by many. Later many have introduced the inclined plane as more advantageous and less dangerous. Counter irritation in the form of a liniment and mustard over the spine has been employed with hopes of allaying pain.

The diet should be ordinary accustomed diet. All excesses should be avoided, and the bowels should be kept open. In gastric crisis the food should be bland and nourishing.

The bladder requires attention and the patient should be taught to exercise it in order that the muscular contraction may be maintained and strengthened if possible. The use of a catheter should be avoided as long as possible. Cystitis should receive the treatment that is recommended for that disease. Sexual disturbance is manifested by irritation and must receive attention. Electricity, whether it is curative or not, is of mental use and should be studied.

Aluminum, both the *metallicum* and the *chloridum*, should be studied in those cases in which there is pares-

thesia, diplopia and ptosis. There are lightning-like pains in the legs and back as if a hot iron was thrust into the spine. There is pain and paralysis of the lower extremities, and it is impossible to walk with the eyes closed. The soles of the feet feel as if they were swollen and too soft, and there is numbness of the heels when stepping on them. When walking he staggers and is compelled to sit down.

Plumbum metallicum should be remembered during the early stages when there is severe paroxysmal pain, which is worse at night. There is impotency and retention of the urine. It produces the anatomical lesions of disseminated sclerosis, the tremor, the paralysis and the muscular atrophies, and it has repeatedly cured these symptoms.

Argentum nitricum is often indicated in the advanced stages when there is pronounced inco-ordination with optic atrophy. The pupils are unequal in size, and the Argyll-Robertson pupil is present. There is trembling of the hands and complete loss of the sexual power. There is a sensation of vertigo as if turning in a circle, preventing the patient from standing. There is momentary blindness and irregular movements of the extremities; the limbs are retracted toward the abdomen; there is instability of the limbs, vacillating gait, and he cannot walk without staggering.

Zincum metallicum.—When this remedy is indicated, there is inco-ordination while walking and loss of the sexual power. There is great weakness in the lumbar region, and in the knees when walking, weak-

ness, numbness and tremor in the limbs, lancinating pains extending to the knees, which feel as if they would give way. There is paralysis of the bladder.

Acidum nitricum should be studied in those with a syphilitic history and cerebral symptoms, as headache, imperfect vision, mental depression and irritability and sharp burning pains.

Kali hydrojodicum when the syphilitic history is apparent and there is a clear-cut history of the involvement of definite muscles.

Acidum picricum should be remembered in asthenic patients who are exhausted from the slightest exertion. There is a sensation of burning in the spine and an inordinate sexual desire.

Ammonium muriaticum is indicated when there are rending, tearing pains in the thigh, lower extremities and joints, with a sensation of soreness and lightning pains with disturbance of co-ordination.

Thallium should be remembered when the pains are violent; the lower extremities are practically paralyzed.

Physostigma.—There is a feeling of unsteadiness and insecurity in walking, he has to tread carefully, especially if the eyes are shut or when in the dark. He feels the need of a cane or some other means of support. There is a feeling of weakness as though paralyzed passing downward through the whole length of the spine to the lower extremities, which feel as if asleep. There is staggering gait as if drunk.

Lathyrus sativus is indicated when there is weakness and trembling of the limbs, followed by a sort of

stupefaction, and almost total loss of power in the extremities. The pigs that eat it are said to drag their feet after them.

Gelsemium is used when there is paralysis of the limbs. They cannot move them they feel so heavy; there are electric-like pains through the limbs, unsteady gait, and the muscles will not obey the will. There is a sense of helplessness from brain weakness, temporary blindness and paralysis of the bladder.

Belladonna should be remembered when there is loss of power to co-ordinate muscular movements; when walking he raises his feet slowly and puts them down with force. There is trembling of the muscles and limbs, weak and tottering gait, and paralytic weakness of all the muscles, especially during the initial period of the disease.

Helleborus.—The muscles do not act in harmony unless the attention is fixed upon them; the walk is slow and tottering, and there are twitching, tearing pains in the limbs, sudden relaxation of certain muscles. He lets fall an object held in the hand. There is a staggering gait, with want of firmness in the legs and bending of the knees, vesical tenesmus, impotence, with flaccid penis.

Æsculus hippocastanum.—When this remedy is indicated there is lameness and paralytic feeling from neck down, the back and legs are weak, and he can hardly walk, must lie down. There are fulgurant pains and ocular and vesical tabetic symptoms. This remedy is indicated even when the sclerosis is well advanced.

Baryta carbonica.—When standing he felt a blow in the thigh, above the right knee, so violent that he believed he would fall forward. There is a rapid momentary pain in the right knee, like cutting with a knife, which makes the leg lame, trembling of the hands and limbs, with great mental and bodily weakness, and constant inclination to lie down.

Angustura is used when there are twitching and jerking along the back like electric shocks, and paralytic weakness of the whole body, which is indicated in the spasmodic form, or when the paresis is associated with fulgurant pains.

Silicea is often indicated when there is trembling in the limbs, as if he had lost all power over them, with wandering pains passing quickly from one part of the body to another. There is sense of great debility, he wants to lie down; the limbs are sore, lame and cold, and go to sleep easily. There is paralytic weakness in the joints when sitting or walking, drawing jerking pain in the hip-joint and tearing pain in the thighs, followed by numbness.

Acidum oxalicum.—There are pains shooting down from the spinal cord to the limbs, especially the lower ones; the back feels too weak to support the body. There is dyspnœa followed by general numbness, jerking pains, continued to small spots and lasting only a moment. The urine contains calcium oxalate.

Nux vomica should be remembered when there is staggering walk, when he drags his feet, and there is numbness and deadness of the legs and feet, and in-

complete paralysis, with the power of motion not entirely gone, and when there is paralysis of the bladder and obstinate constipation.

HEREDITARY ATAXIC PARAPLEGIA.

Synonym.—Friedreich's Ataxia.

Definition.—This is a chronic disease of the spinal cord, that occurs in families and is characterized by ataxia and paraplegia.

Etiology.—The appearance of two or more cases in one family is characteristic. The consignment of parents has been traced to certain proportions of cases. It is developed following infectious diseases in some cases. As high as ten cases have developed in certain families.

Pathology.—Of this but little is known. In many cases the diameter of the spinal cord has been reduced. This narrowing has been attributed to contraction of the connective tissue.

Symptoms.—At any period, from the second to the fifteenth year, spastic paraplegia appears with symptoms resembling those of locomotor ataxia; in adults accompanied by wasting. There are irregular movements of the limbs even while the patient is at rest. The speech becomes impaired early, and sounds as though there was a foreign body in the mouth. There may be a jerky movement of the tongue. The face is expressionless, but the intellect is clear. Nystagmus is common. The pupils react normally. The deep reflexes are lost. The foot shows a deformity "pes cavus," which gives it a peculiar stumpy, jerky appearance. A similar deformity of the hand may be pres-

ent. Death may result from malnutrition or from an intercurrent disease.

Prognosis.—This is unfavorable.

Treatment.—This is similar to that in other forms of sclerosis. The treatment of service in tabes, may be of use here. Deformities may be corrected with braces.

ACUTE ANTERIOR POLIOMYELITIS.

Synonyms.—Infantile Spinal Paralysis; Acute Atrophic Paralysis; Atrophic Spinal Paralysis.

Definition.—This is an acute infectious disease of childhood, that appears abruptly. It is characterized by complete loss of power in one or more limbs, particularly a leg. It is followed by atrophy of the muscles of the affected limb. Adults are rarely affected.

Etiology.—There appears to be no doubt but that it is infectious in origin. It is observed in both sexes and in children as young as five months. It appears in epidemic form at times. Exposure to cold while perspiring and traumatism appear to assist in its development.

Pathology.—During the early stages of the disease there is hyperæmia of the spinal membranes and of the gray matter. Numerous leukocytes and some red blood corpuscles are present in the affected area. The neuroglia shows proliferative changes. The motor neurons show degenerative changes. This degeneration may continue till the vitality of the cells is destroyed. The cells are granular, evacuated and the dendrites disappear. The cells in the anterior horns undergo shrinking and the fibres in the anterior nerve roots undergo degeneration and atrophic changes. As a result of an extension of the atrophy, various groups of muscles become paralyzed. Sclerotic changes may be observed in the anterolateral columns close to the lesions.

Symptoms.—The symptoms appear suddenly with convulsions, vomiting, diarrhœa, delirium, headache, dull heavy pains in the back and in the extremities with febrile symptoms. Extensive palsies soon appear, while at a later period wasting of certain groups of muscles appears. There may be incontinence of the urine and fæces. After a few months the original extent of the paralysis gradually diminishes till the loss of power and the wasting are limited to certain parts that remain permanently deficient in nutrition, growth and function. The reaction of degeneration is observed in certain muscles and nerves. The reflexes are either enfeebled or lost.

Diagnosis.—This is based upon the symptoms as outlined.

ACUTE ANTERIOR POLIOMYELITIS.

1. The reflexes are enfeebled or lost.
2. Permanent palsy, but not as extensive.
3. No sensory symptoms.
4. Seldom have bed sores.

MYELITIS.

1. Are exaggerated.
2. More extensive.
3. There are sensory symptoms.
4. They are common.

PARALYSIS DUE TO ANTERIOR POLIOMYELITIS.

1. The paralysis is usually limited to but one side.
2. It is attended with wasting, and the reaction of degeneration.
3. No athetoid movements.
4. Reflexes enfeebled.

CEREBRAL PARALYSIS.

1. May involve both sides.
2. Attended with wasting, but not the reaction of degeneration.
3. Are present.
4. Reflexes exaggerated.

ACUTE ANTERIOR POLIOMYELITIS.

1. No special local tenderness in the joints.
2. There is atrophy, but no sweating.
3. No cardiac complication.

ACUTE RHEUMATIC FEVER.

1. This is present.
2. No atrophy, but sweating.
3. Often cardiac complication.

Prognosis.—The disease is rarely fatal, but a degree of permanent paralysis in some part is the rule. If the muscles respond to the faradic current when the disease has existed three weeks it is likely that recovery will take place to a great extent. The chances are better in those cases that start with fever than those that start insidiously.

Treatment.—The patient should be placed in bed and absolute rest insisted upon. If the temperature is high, sponging should be resorted to followed by an alcohol rub. These patients should be trained to exercise the proper mental attitude towards the case. They are crippled for life, but this subject should not always be the one spoken of. Their existence is not useless, but they should be trained and educated for something in which they can be of great service, and hopefulness should be instituted rather than gloom, depression and reticence.

The excretory organs should all receive attention. The bowels should be attended to that constipation and impaction may not result. During the acute stage hot packs or hot air baths, or a prolonged tub bath with water at a temperature of 104° F. is advisable. The tub bath may be continued for ten minutes and repeated every four hours. This will not only assist elimina-

tion, but will relieve the pain. The diet should be liquid, bland and generous, and composed of milk, malted milk, broth, soft-boiled eggs, egg-nog, toast, fruits and juices.

If the pain is very severe during the early stages the application of cold to the painful parts may afford relief.

When the acute symptoms have subsided and paralysis is evident, the tub bath should be continued at longer intervals, and during the time the body lies floating in the water gentle movements of the limbs to restore their normal position should be employed. The bath not only assists in relieving the pain, but it relaxes the muscles and renders the giving of massage much easier. It will be found that movements of the extremities can be made two weeks earlier in the water than they can be made in bed.

Exercise of paralyzed muscles must be increased slowly, as hasty attempts to restore paralyzed muscles result in strain and exhaustion of the already weakened muscles. Electricity and massage should be avoided during the early stages, as stimulation of the peripheral ends of the lower motor neurons causes stimulation of the ganglion cells of the neurons, and consequently tends to increase the trouble. It is rest and not stimulation that the ganglion cells need. This measure should not be undertaken for six weeks after the onset of the paralysis, and if there is pain and tenderness at this time it should be deferred till all pain and tenderness has been absent at least three weeks.

Contractures and deformities can be corrected by habitually normal postures, corrective manipulations, mechanical appliances, tendon, muscle and nerve transplantations.

Electricity is of questionable advantage other than for a diagnostic purpose, and should under no condition be employed early. There is no doubt but that during the early stages more can be accomplished by manual or mechanical exercises. The serum treatment has not to the present time developed anything that is of service in either preventing the disease or controlling its effects.

Aconitum napellus is of service only during the early stages when the initial fever, the restlessness and anxiety are present. But when the inflammation becomes localized and the paralysis appears then *belladonna* and *gelsemium* should be studied.

Gelsemium.—This remedy should be studied early in the history of the case, when there are indications of motor paresis and the patient complains of exhaustion and weariness. There is pain referred to the spine and the back of the head. There is a partial loss of vision and a moderate rise of temperature.

Belladonna should be remembered when there is a sudden onset of the symptoms. The face is flushed, the pupils are dilated and all the indications of cerebral congestion are present.

Plumbum should be studied in the advanced history of the case when paralysis with atrophy are present and the acute symptoms have passed.

Ergot in from three to ten-drop doses of the fluid extract every three hours has been advocated.

Echinacea angustifolia in from five to twenty drops of the form prepared for hypodermic medication and given in this method, is of service in those cases presenting a septic type with fever.

CHRONIC ANTERIOR POLIOMYELITIS.

Synonym.—Progressive Spinal Muscular Atrophy.

Etiology.—While the cause is not determined it has been attributed to syphilis, exposure to cold, dampness and chronic lead poisoning.

Pathology.—There is atrophy of the fibres and cells of the anterior cornua of the spinal cord. The anterior nerve roots and the antero-lateral columns of the spinal cord show a degeneration, which extends along the motor nerves to their termination in the muscle. The muscle in turn shows a degeneration; the striæ becoming faint and fatty degeneration takes place.

Symptoms.—There is no acute stage, the symptoms appear and progress with more or less rapidity to the end, which may vary from two to three months to two or three years. The patient is from fifty to seventy years of age. The symptoms vary with the portion of the cord involved. There is a gradually increasing paralysis accompanied by atrophy. The reflexes of the affected muscles disappear. The reaction of degeneration is present. The circulation of the affected part is retarded and it is cold to the touch.

Prognosis.—This is unfavorable.

Treatment.—The patient should receive a nutritious, easily digested diet and should have fresh air. Hydrotherapy, electricity and rest are beneficial in prolonging life. The remedies must be selected according to the symptoms presented.

SPINAL COMPRESSION.

Etiology.—This may be the result of tumors, dislocations, caries and fractures or exostoses of the vertebræ and aneurism, that has eroded the bones, or hydatid cysts.

Symptoms.—There is local pain which is made worse from movements and a girdle-like sensation and later anæsthesia. There is loss of motion below the seat of compression. The palsied muscles slowly waste and the reaction of degeneration sets in and contractions may ensue.

Diagnosis.—This is based upon the clinical history, and the finding in the case, the recognition of a tumor, fractures, dislocations and caries.

COMPRESSION.	HEMORRHAGE INTO THE SPINAL MEDULLA.
1. The giving way of the vertebra is slow, but may produce symptoms similar to those of hemorrhage.	1. The symptoms appear more rapidly.
2. The symptoms are more extensive and are more absolute.	2. Are not so extensive, nor are they so permanent.
3. The spine is deformed.	3. Not definite.

Prognosis.—This is dependent upon the etiology of each case.

Treatment.—This is dependent upon the management of the cause.

SPASTIC PARAPLEGIA.

Synonyms.—Primary Lateral Sclerosis; Spastic Spinal Paralysis; Erb's Palsy.

Definition.—This is a chronic disease due to a sclerosis of the descending fibres of the crossed pyramidal tract of the spinal cord.

Etiology.—It is observed in those of a neurotic family history; in adults of both sexes, usually between twenty and forty years of age. Sexual excesses, infective diseases and lead poisoning have been found as etiological factors.

Pathology.—The crossed pyramidal tract reveals sclerotic changes. The multipolar cells in the anterior cornua may be involved in the process.

Symptoms.—There is pronounced muscular weakness and spasms, the latter involving the extensors of the lower extremities, which results in a peculiar spastic gait (clasp-knee). Attacks of spinal epilepsy occur, the reflexes are exaggerated and ankle-clonus is present. There is a degree of muscular wasting and occasionally hypertrophy. The arms are not as frequently nor as extensively involved as are the legs. There may be abnormal sensation, but no anæsthesia. The sphincters may be involved.

Diagnosis.—This is based upon the clinical history of the case and upon the symptoms as outlined.

SPASTIC PARAPLEGIA.

1. The symptoms are gradual in their onset, and are without febrile symptoms.
2. No girdle sensation.
3. Typical paraplegia with muscular wasting, degeneration and impairment of sphincters is less characteristic.

MYELITIS.

1. Rapid in its onset, and attended with fever.
2. Girdle sensation is present.
3. Are more characteristic.

LATERAL SCLEROSIS.

1. May be unilateral, but face is not involved.
2. The reflexes of the upper as well as the lower extremities on the apparently uninvolved side are exaggerated.

CEREBRAL HEMIPLEGIA.

1. The face is usually involved.
2. The opposite.

Prognosis.—The condition is incurable and the prognosis is unfavorable.

Treatment.—This is very similar to that of other diseases of the cord. Warm baths have been highly recommended to relieve the spastic condition of the muscles. The nutrition of the patient should be maintained as thoroughly as possible. The agent used in posterior spinal sclerosis should be considered in this connection. Nerve vibration, mild Faradism to the legs and special cuppings are of special service.

Plumbum and *lathyrus sativus* should be studied in connection with remedies mentioned in other places.

SPINAL APOPLEXY.

Synonym.—Hemorrhage into the Spinal Cord.

Definition.—This is a hemorrhage into the substance of the cord.

Etiology.—Traumatism is the cause of the majority of cases. It may result from hæmophilia. It is most common in subjects from twenty to forty years.

Pathology.—The hemorrhage may be slight or extensive. It is usually confined to the gray matter. The diameter of the cord at the point of hemorrhage is increased. The cord substance may be torn by the blood clot and later followed by softening and cicatrix.

Symptoms.—The first symptom noticed is a sudden severe pain in the back, with a loss of motion and of sensation. Consciousness may or may not be lost. A girdle sensation exists at the level of the lesion, and the loss of motion and sensation below on alternate sides or on both sides according to the seat of the lesion. Trophic changes occur and the sphincters are often relaxed. If the lesion is in the cervical or dorsal region the respiration is interfered with. A certain degree of meningitis and myelitis develop in these cases. As these appear a rise of temperature occurs, while later paralytic symptoms occur and a degree of paraplegia remains permanently. The affected muscles waste. The deeper reflexes are exaggerated. Spastic paraplegia contractures, trophic changes, bed-sores are met with.

Diagnosis.—This is based upon the symptoms as outlined.

SPINAL HEMORRHAGE.

1. The onset is most abrupt.
2. Febrile symptoms appear late, when myelitis has developed.
3. Motor and sensory impairment is more decided.
4. Onset sudden.

SPINAL MENINGITIS.

1. Not as abrupt.
2. Appear early.
3. Not as decided.
4. Onset is attended with pain and spasms.

SPINAL HEMORRHAGE.

1. The local and radiating pains are not so severe.
2. The subsequent anæsthesia is severe.
3. The paralytic symptoms are more severe from the onset.
4. Not so.
5. Trophic changes are characteristic.

MENINGEAL HEMORRHAGE.

1. These are more severe.
2. It is less severe.
3. Not so severe.
4. Paralytic symptoms are preceded by muscular spasms.
5. Are wanting.

Prognosis.—If the hemorrhage is profuse, death may result within a few hours. If the patient lives for three months with improvement, but little need be looked for; exhaustion, cystitis, bed-sores are apt to be the cause of death. A case seldom completely recovers and contractures are nearly always present.

Treatment.—Absolute rest is needed. The patient should rest either upon the side or chest; the latter is the preferable position. During the early stages ice bags should be applied to the spine. The bowels should be kept free and yet purging should be avoided. The treatment of cerebral hemorrhage should be studied.

Hypericum should be remembered during the acute stages. If there is a history of traumatism the remedy may be applied locally and administered internally.

Arnica should always be considered in these cases and continued for a long time, as it assists in the absorption following the acute stage. *Aconite*, *veratrum viride* and *hamamelis* should be compared.

AMYOTROPHIC LATERAL SCLEROSIS.

Synonyms.—Spinal Muscular Atrophy; Progressive Muscular Atrophy and Glosso-labio-laryngeal Palsy.

Definition.—There are three affections embraced under this heading. It is in each case a chronic progressive muscular atrophy. The change is at first limited to a certain portion of the body, from which it extends and involves other parts.

Etiology.—Of this but little is known. It is more common in women than in men, and in those from twenty to fifty years of age. Lack of food, syphilis, metallic poisoning, exposure to cold, mechanical strain and injuries have been assigned as the cause in some cases. A neurotic history is present in certain cases.

Pathology.—It is a degenerative process. There is atrophy of the ganglia cells in the anterior horns and sclerosis of the lateral columns is found. The anterior root fibres are atrophied and the anterior commissure is degenerated. Degenerated fibres are also found in the peripheral muscles. The dorsal and lumbar region, but more especially the nerve cells of the cervical region, show the degeneration.

Symptoms.—These vary according to the type of the disease present. Amyotrophic lateral sclerosis begins with symptoms of lateral sclerosis. A stiff, awkward, spastic gait, weakness, muscular spasms, epilepsy and symptoms of degeneration of the anterior

horn of the gray matter, muscular wasting, paralysis, loss of reflexes and the reaction of degeneration.

Progressive muscular atrophy develops slowly in some cases and rapidly in others, but it is always progressive. Pain that is followed by muscular wasting is observed in some portion of the body. Usually this is followed by weakness. The wasting and weakness gradually invade the different parts of the body. Respiration may be interfered with. If the patient lives long enough, bulbar paralysis is super-added.

The thenar and hypothenar eminences and the interosseous spaces show the wasting in a pronounced manner. There is spontaneous fibrillary contraction of the affected muscles. The deep reflexes are enfeebled in proportion to the muscular wasting. Mechanical muscular irritability is heightened.

Glosso-labio-laryngeal paralysis is similar to that already mentioned. The degeneration begins in the muscles of the cerebral rather than in those of the spinal nerves, especially the facial, spinal accessory, hypoglossal, glosso-pharyngeal and the pneumogastric. The difficulties are in mastication, deglutition, in respiration, phonation and articulation. The muscles that are involved show fibrillary contractions. Speech is interfered with and fluids regurgitate through the nose. Saliva dribbles from the mouth. The food may pass into the larynx. The facial muscles are affected.

Diagnosis.—This is based upon a careful study of the symptoms as mentioned.

**PROGRESSIVE MUSCULAR
ATROPHY.**

1. A disease of advanced life.
2. It is gradual in its onset and is progressive in its course.
3. No fever.
4. There is fibrillary twitching.

ACUTE ANTERIOR POLIOMYELITIS.

1. A disease of youth.
2. Acute in its onset and progressive in its course.
3. It is attended by fever (early).
4. No fibrillary twitching.

**PROGRESSIVE MUSCULAR
ATROPHY.**

1. It is dependent upon a degeneration.
2. It is general.
3. There are no sensory disturbances.
4. Begins in mid-life.

PROGRESSIVE NEURAL ATROPHY.

1. It is dependent upon a neuritis.
2. It is of a peroneal type.
3. There are sensory disturbances.
4. Begins in early life.

Prognosis.—This is unfavorable both as to improvement and as to life. The duration of the disease is from one year to twenty, but usually about five years. If the onset is rapid it usually terminates quickly. The involvement of the muscles of respiration and bulbar paralysis are the principal dangers as to early termination of the case.

Treatment.—These cases should have rest; massage and electricity may be of service. The patient should be well nourished, have an abundance of fresh air and the best general hygiene. In some cases it will be found advisable to begin the use of the esophageal tube in the management of the case.

In those cases in which there is a history of syphilitic

infection the *iodides* and *mercuries* should be studied. The *bromide of gold* and *arsenic* have appeared to hold some cases in check. The *strychnia phos.* has also had a beneficial effect in a few cases. *Plumbum* and *picric acid* and *picrate of zinc* are also of service.

GENERAL PARALYSIS.

Synonyms.—Paretic Dementia; General Paralysis; Dementia Paralytica.

Definition.—This is a chronic progressive inflammation of the central nervous system that involves the cerebrum and the pia mater covering it. It results in a loss of mental and physical power, and terminates in paralysis, insanity and death.

Etiology.—It is most common in those past the meridian of life, who belong to the higher classes of society, and those who are over-worked, worry and have syphilis.

Pathology.—There is atrophy of the frontal lobes of the cerebrum. The parts are of a lighter color and are firmer than is normal. The convolutions are contracted and the fissures are wider than is normal. The dura and pia mater are thickened. The latter is often adherent. The walls of the lymph and blood vessels are thickened. The nerve tissue is replaced by neuroglia. The cerebral neurons atrophy. Sclerotic changes develop in the lateral and posterior columns of the cord.

Symptoms.—The first symptoms are usually in the form of delusions of grandeur accompanied with lack of judgment and loss of memory. Extravagant financial obligations may be undertaken, promises may be made that no one could fulfill. There may be insomnia, irritability, moroseness, or excitability. The

speech is hesitating and indistinct and difficulty is experienced in pronouncing certain complicated phrases or sentences.

The hand writing is wavering, wrong letters are inserted, words are misspelled and syllables are omitted. The pupils are of unequal size, the patellar reflexes are absent. If there is spinal sclerosis as the case advances the mental condition becomes maniacal and delusions are more extraordinary or melancholy and mental depression is more apparent. The speech and hand writing are more disturbed until lost. Epileptiform and apoplecticform seizures develop, and the gait is disturbed. The sphincter may be relaxed. Bulbar symptoms develop, the patient becomes helpless and there is loss of mental power, and death is the result of exhaustion or from a complication. The duration of the disease is from three to six years, but a more rapid course may be met with.

Diagnosis.—The rapid development and the peculiar loss of co-ordinating power, both mental and physical, in a man of middle life, and especially if he is of an emotional, venereal or alcoholic tendency, or with a syphilitic history, should always lead one to think of general paralysis.

GENERAL PARALYSIS.

1. There are indications of cerebral nervous dissolution.
2. There are pronounced changes of the disposition.

POSTERIOR SPINAL SCLEROSIS.

1. This is not present.
2. Not present.

GENERAL PARALYSIS.

POSTERIOR SPINAL SCLEROSIS.

- | | |
|--|-----------------------------|
| 3. There are emotional disturbances, impaired memory, maniacal outbursts, and delusions of grandeur. | 3. Not present. |
| 4. There are inequalities of pupils. | 4. The pupil may be normal. |
| 5. There is a tremor of the lips and tongue, and deranged language, faculty of speech and writing. | 5. Not present. |

Prognosis —So far as recovery is concerned this is unfavorable. There are periods of remissions and temporary improvements, but there is relapse and death.

Treatment.—The first question in these cases is whether the patient is to be cared for at home or in an institution. Speaking generally, an institution is to be preferred, as it is impossible to state what the patient might do either from the standpoint of business or socially. The patient's habits should be corrected. Rest should be insisted upon and all trips and voyages should not be considered. The diet should be non-stimulating but a nutritious mixed diet. During the later stages of the disease care must be exercised in feeding lest particles of food find their way into the trachea and bronchia, and a deglutition pneumonia results. A liquid diet may be necessary late in the disease. The bowels should be carefully regulated by the diet if possible. If the life is sedentary massage is of service. During the later stages of the disease bed-

sores should be guarded against. The urine may pass involuntarily, when great care is needed to keep the patient from becoming sore. In other cases the urine is retained and a catheter must be used.

There has not been much accomplished by remedies in this condition. The epileptiform seizures may be partially controlled by the remedies that meet this condition. The apoplectiform condition should be cared for much as the early stages of cerebral hemorrhage. If there is a history of syphilis it should receive attention. During the mental excitement *aconite*, *belladonna*, *hyoscyamus*, *stramonium*, *agaricus* and *veratrum viride* should be compared. The remedies that have been employed for the general symptoms are *picric acid*, *picrate of zinc*, *aurum*, *platina*, *argentum nitricum* and *mercury*.

ATAXIC PARAPLEGIA.

Synonyms.—Progressive Spastic Ataxia; Posterior-lateral Sclerosis.

Definition.—This is a sclerosis of the posterior and lateral columns of the spinal cord.

Etiology.—It is more common among men than women, and in those between thirty and forty years of age. A neurotic heredity, exposure to cold, injury to the spine, sexual excesses are etiological factors, and it has developed following one of the acute infectious diseases. A history of syphilis is exceptional in these cases.

Pathology.—The posterior and lateral column of the cord are sclerosed. The sclerosis of the posterior columns shows more degeneration in the thoracic than in the lumbar region. The sclerosis of the root zone does not especially affect the root zone of the posterior external columns. The degeneration of the lateral column is not strictly confined to that tract, but embraces other tracts. Other contiguous tracts may also show involvement.

Symptoms.—There is gradually developed an unsteadiness and a spastic weakness of the lower limbs. In some cases the ataxia is the most prominent feature. Various subjective sensations may be present, including pain in the back and a dull distress in the legs. The knee reflex is usually increased and the ankle clonus is often present. The plantar reflex is of the

extensor type. The urine is retained with difficulty. In time an intentional tremor appears in the upper extremities with spastic weakness and increased activity of the tendon jerks. The cranial nerves show but little involvement. Nystagmus may appear and optic atrophy may develop. There is impairment of articulation. The pupils may react slowly. Bed-sores, cystitis and pyonephrosis may develop and be the cause of a fatal termination.

Diagnosis.—This is based upon the symptoms as outlined.

ATAXIC PARAPLEGIA.	POSTERIOR SCLEROSIS.
1. Syphilis is a rare cause.	1. Syphilis is a common cause.
2. Weakness is an early symptom.	2. Weakness a late symptom.
3. Knee-jerk exaggerated.	3. Knee-jerk lost early.
4. Ankle clonus is present.	4. No ankle clonus.
5. Characteristic muscular spasm.	5. Never muscular spasm.
6. Pupil responds to light.	6. Argyll-Robertson pupil appears.
7. Dull sacral pains.	7. Lightning pains.
8. Sensation unimpaired except late.	8. Sensory impairment.
9. No girdle sensation.	9. Girdle sensation.
10. Optic nerve atrophy rare.	10. Optic nerve atrophy common.
11. No crisis.	11. Visceral crisis.

Prognosis.—The disease is incurable and the prognosis is unfavorable.

Treatment.—This is similar to other forms of cord

diseases. Warm baths assist in relieving the spastic condition of the muscles. The diet must be nutritious and one that is easily assimilated. The remedies to be studied are those mentioned under tabes.

DISSEMINATED SCLEROSIS.

Synonyms.—Cerebro-spinal Sclerosis; Multiple Sclerosis; Insular Sclerosis.

Definition.—This is a sclerosis of portions of the brain and spinal cord.

Etiology.—It is a disease of early life. It rarely develops after forty. It is more common in females than in males, probably due to the neurotic tendency in females. The excessive use of alcohol and lead poisoning favor its development, as well as the infectious diseases, exposures to cold, traumatism and fatigue.

Pathology.—The sclerosed area may be found in any portion of the nervous tissue. It is indicated by reddish-gray patches or by areas that are of a lighter color and firm. As the fibrous connective tissue contracts, atrophy of the nerve tissue results.

Symptoms.—These vary according as the changes are principally in the spinal or cerebral system. In the majority of cases the changes are found in both the cerebral and spinal nervous system. Following some mental or physical strain there appear symptoms that remind the attendant of hysteria. There may be a transitory aphonia or a sensation of aphonia, deadness, coldness, or as of the pricking of pins and needles, of loss of power in some part of the body, or of a power in some portion of the body which may be attended with convulsions. Any or all of these symptoms may

appear for a time. These disappear and again reappear with greater severity.

When the disease has been once established periods of remission may appear, but spastic paraplegia with ankle clonus, exaggerated reflexes and limited movements appear. An irregular jerky tremor occurs with nystagmus. Paralysis of the ocular muscles, with diplopia and a scanning speech, are common. Paresthesia, vertigo and tinnitus aurium are present. The mental faculties are not acute, while epileptiform and apoplectiform convulsions appear. If trophic changes appear they are late in the course of the disease. In those cases in which the spinal cord is alone affected the symptoms dependent upon cerebral involvement are absent.

Diagnosis.—This is frequently difficult to make. The condition that should be borne in mind is hysteria, which also appears early in life, frequently following a slight injury. The speech, tremor and nystagmus may each be present and simulate disseminated sclerosis. The nystagmus of hysteria is usually associated with blinking. The presence of any symptom, the result of an organic lesion, places the condition outside of hysteria. A true persistent ankle clonus, paralysis of cranial nerves, optic atrophy and true nystagmus should be carefully looked for. It should be remembered that even in cases of organic origin marked improvement may take place for a time and thus simulate hysteria.

Syphilis of the nervous system, especially if dissem-

inated, may present a group of symptoms that are frequently mistaken for disseminated sclerosis. It is difficult to distinguish them. The intentional tremor, the speech defect, the presence of nystagmus and the emotional mental state are not marked in syphilitic cases, while the history of an infection and benefit from syphilitic treatment renders the diagnosis more definite.

Cerebellar tumor, tabes, ataxic paraplegia, paralysis agitans, Friedrich's ataxia and sub-acute combined degenerations of the spinal cord may each simulate disseminate sclerosis.

Prognosis.—This is unfavorable. Many of these cases survive many years, especially if it is spinal.

Treatment.—There is no evidence that treatment has any influence apart from possibly retarding the progress of the disease and modifying some of the symptoms. When it is apparent that the disease has developed, the general nutrition of the patient should be maintained, and all influence that will in any way act against the health should be avoided.

Massage, hydrotherapy and electricity, especially the galvanic form, is often beneficial in allaying the numbness and symptoms that develop. They should be administered by one who is competent. Rest should be insisted upon and fatigue in all forms should be avoided. The patient should have fresh air and a nutritious diet. The body should be protected from cold and sudden changes of the temperature, and if possible the patient should reside in a mild climate. Pregnancy should be avoided. Cystitis should be guarded against

by the use of a sufficient amount of fluid, and irrigation of the bladder should be employed if the increased fluid is not found to be sufficient.

Care should be exercised in the selection of a remedy; the totality of symptoms and the recognized pathological changes should be considered. When a remedy has been decided upon as the one believed to be indicated it should be continued for a prolonged period. If it is to be of any benefit it will take time.

Aurum.—This remedy has appeared to have some influence in several cases when the mental condition and general symptoms requiring the remedy were present. In a few cases the bromide of gold and arsenic or the chloride of gold and arsenic appears to answer better.

Plumbum.—This remedy has produced the anatomical changes so characteristic of disseminated sclerosis and the symptoms that accompany these changes. It is, therefore, a remedy that should be carefully studied.

Other remedies that should be compared are *arsenicum*, *zincum*, *mercury* and *lathyrus*.

Hyoscine hydrobromate, in three-grain doses of the 4x, will be found of service in controlling the tremor temporarily. Later the amount of the remedy must be increased. In some cases a large amount is required at the start.

If insomnia is distressing, *passiflora* θ , twenty to thirty drops, one hour apart for three doses before retiring, is of service. In advanced cases the *bromides* or *chloral* may be necessary in controlling the symptoms.

SYRINGOMYELIA.

Synonym.—Gliosis Spinalis.

Definition.—This is a condition which is characterized by the formation of a cavity in the substance of the spinal cord, owing to a breaking down of certain nerve structures.

Etiology.—Nothing is positively known of its etiology. It is slightly more common in males than in females, and between the twentieth and thirtieth years of life. Severe traumatism, infectious fevers and especially enteric fever appears to be the cause in certain cases.

Pathology.—This is looked upon as a gliosis with degeneration of the central portion of the cord with hemorrhage. It should be differentiated from hydro-myelia, which simply refers to a distension of the central portion of the cord. The cavity in the center of the cord may involve the whole length of the cord, but more frequently it involves but a portion. A serous fluid may be found in the space.

Symptoms.—These are characterized by a loss of the sensation of pain and temperature in any part of the body. The tactile sensation is preserved in the same area. There are trophic changes in the muscles, bones, joints and skin, and progressive muscular atrophy with paralysis. Symptoms of spastic paraplegia and of transverse myelitis may be present. The symptoms vary according to the portion of the cord involved.

The symptoms appear slowly and the disease is chronic in its course. The prominence of the symptoms will depend upon the distribution of the lesion.

The disease may be of years' duration and death may finally be the result of an intercurrent disease. In the majority of cases there is a spinal curvature of some form. The reflexes vary in character.

Diagnosis.—This is based upon the symptoms.

SYRINGOMYELIA.

1. Not so marked.
2. The pain-sense and the temperature sense are involved.

MYELITIS.

1. There is much more profound palsy and loss of sensory power.
2. Not so much disturbance.

SYRINGOMYELIA.

1. Pain not marked.
2. Extensive anæsthesia.

HYPERTROPHIC PACHYMEINGITIS.

1. A marked feature.
2. Less extensive.

SYRINGOMYELIA.

1. Disturbance not marked.
2. Spastic symptoms may be present.
3. Sphincters may be involved.
4. No lepra-bacilli.

LEPROSY.

1. Peripheral nerves may be swollen and tender, and all types of sensibility suffer.
2. Are not present.
3. Are seldom or ever involved.
4. The detection of the lepra-bacilli in the serum or blisters is positive.

Prognosis.—While the disease may last for years, it is not recovered from.

Treatment.—This consists in meeting the conditions as they arise. Trophic changes should be met by rest. Paralysis should be met as are cases of anterior poliomyelitis.

ACUTE ASCENDING PARALYSIS.

Synonym.—Landry's Paralysis.

Definition.—This is an acute disease in which there is an ascending paralysis starting in the lower extremities and extending upward till in fatal cases the respiratory muscles and the heart are involved.

Etiology.—This is not determined. It may follow one of the acute infectious diseases, as diphtheria, variola, typhoid fever; exposure to cold, alcoholic excess and syphilis have appeared to be the cause in certain cases.

Pathology.—This is not definite, but softening, vascular disturbances and hemorrhages into the gray matter of the cord have been recognized.

Symptoms.—Preceding the appearance of the paralysis there may be a disturbance of the sensation and shooting pains. Within a few days the paralysis appears and soon becomes paraplegic in character. The paralysis gradually ascends from the legs to the body, abdominal muscles, the back and arms. The tendon reflexes are lost; as the case advances bulbar symptoms appear and the patient has difficulty in chewing, swallowing, articulation and phonation. The pupils are dilated and the muscles of the eyes are paralyzed. The pulse rate is increased and dyspnoea is present. The sphincter muscles are seldom affected. The paralysis may be descending and not ascending.

Diagnosis.—This is based upon the symptoms as outlined, and the absence of bed-sores and fever.

ACUTE ASCENDING PARALYSIS.

1. No sensory disturbances.
2. No acute pain.
3. No inflamed sensitive nerves.
4. Electric reaction is normal and does not show any degree of atrophy.

MULTIPLE NEURITIS.

1. Are present.
2. There are acute pains.
3. The nerves are inflamed and sensitive.
4. Electric reaction of the muscle shows degeneration, and the affected muscles atrophy.

ACUTE ASCENDING PARALYSIS.

1. Paralysis appears gradually.
2. No marked muscular atrophy.
3. Muscular reaction of degeneration is absent.

ACUTE ANTERIOR POLIOMYELITIS.

1. The paralysis appears suddenly.
2. The muscles show atrophy early.
3. Is present.

ACUTE ASCENDING PARALYSIS.

1. No sensory disturbances.
2. Bladder and rectum not affected.
3. No bed-sores.
4. No fever, or but slight.

ACUTE CENTRAL MYELITIS.

1. They are marked.
2. Are affected early.
3. Are present.
4. Is present.

Prognosis.—This is usually unfavorable, but in certain cases the disease has gradually subsided and recovery resulted.

Treatment.—The patient should be confined to the bed. He should lie upon the sides or face rather than on the back, thus assisting in reducing spinal congestion; this may also be assisted by the use of counter-irritation or dry cupping along the spine. The bowels should be kept open. The skin and kidneys should receive attention that they eliminate properly. Should swallowing become difficult the food should be intro-

duced through a stomach tube. It should be easily digested and nutritious. Heart and respiratory failure should be guarded against by the use of electric current to the phrenic nerve and the muscles of the chest. The use of electricity is also beneficial when the acute symptoms have subsided to overcome degeneration.

If there is any definite cause apparent it should receive attention in the selection of a remedy. The following should be carefully studied :

Gelsemium should be studied when the patient presents a general sense of helplessness. The muscles are so weak there is complete relaxation of the whole muscular system. There is pain in the back of the head and neck, dimness of vision, exhaustion and drowsiness.

Acidum picricum should be studied when the patient complains of great prostration and weakness. All the symptoms are aggravated by the slightest exertion, mental or physical.

Aluminium met. should be studied when the patient is scarcely able to move the legs ; has to sit down, as he is unable to walk. There is numbness of heels and pains in the soles of the feet when stepping upon them. He is so weak that there is a constant tendency to lie down.

Nux vomica should be studied in the case of those who are naturally irritable. There is a sensation of great weakness, especially in the back. He staggers while walking and may fall. The paralyzed parts are

numb and cold. The power of voluntary motion may be nearly lost.

Phosphorus should be studied when the nutrition is below par. There are sensations as though the soles of the feet were asleep. They are painful and render it impossible to walk. *Phosphoric acid* should be compared with the *phosphorus*.

Rhus toxicodendron should be studied when there is a history of exposure, following which paraplegia, attended with painful stiffness, tingling and numbness, has developed. There is pain in the back, which is ameliorated by lying on something hard. There is paralysis of the rectum, as well as of the lower extremities.

Cocculus.—This remedy should be studied in the case of debilitated nervous persons, when the circulation is impeded and sluggish. There is a sensation of constriction through the whole spine.

Chininum arsenicosum is used in those cases in which the patient complains of great exhaustion, is anxious, irritable and there is marked paresis.

Conium maculatum has been of service in several cases and should be studied.

CAISSON DISEASE.

Synonyms.—Compressed Air Disease; Drivers' Paralysis.

Definition.—This disease develops in those who work in compressed atmosphere and develop paraplegia or paralysis when they return to ordinary atmospheric pressure.

Etiology.—This is observed in workers in caissons and divers, where the pressure is more than three times the ordinary pressure. The more rapid the transition from the high to the ordinary pressure, the more liable is the condition to take place.

Pathology.—In many cases small fissures in the spinal cord with minute hemorrhages and signs of myelitis have been observed.

Symptoms.—These usually appear within an hour of returning to the surface. They consist in mild cases, of vertigo, pain in the joints and headache of a neuralgic type. In the more severe cases the pain is severe and is attended with nausea and vomiting, gastralgia, pain in the abdomen, and both motor and sensory paralysis of the lower extremities. There may be loss of control of the sphincters with unconsciousness, coma and death. Hemiplegia and monoplegia may develop.

Prognosis.—In alcoholics, the dissipated, the aged and the corpulent this is unfavorable. In those cases in which the pain is the leading symptom good recoveries are speedily made. This is true in certain cases in which paralysis has developed. In other cases the

paralysis is prolonged, the symptoms of myelitis appear with death of the subject, or recovery is slow and may take months.

Treatment.—The workman should return to the ordinary air pressure through a succession of chambers containing lessened degree of atmospheric pressure. The time in which the workman remains under the increased pressure should be shortened. The climbing of ladders appears to favor its development. This should be avoided and elevators employed. They should rest after coming to the surface. The fact that the patient is frequently relieved of the symptoms by returning to the pressure has led to the preparing of a chamber in which he can be placed and the atmospheric pressure raised.

The patient should be kept in the recumbent posture and hot applications applied to the back and extremities. The diet should be nutritious and the workman should take a meal before entering the caisson.

Pain in the joints is often relieved by the application of dry heat (baking), the use of the faradic current, massage or the placing of the limb in hot water. Seldom is any sedative required except in severe cases.

If the stomach pains are severe the giving of whiskey or alcohol containing ginger will be found to afford relief.

In severe cases the management is similar to that of myelitis.

The remedies that should be studied are *secale cornutum*, *lathyrus*, *aconite*, *arnica*, *belladonna*, *atropine*, *bryonia* and *picric acid*.

SCIATICA.

Definition.—This is a neuralgia or a neuritis of the great sciatic nerve and its posterior cutaneous branches.

Etiology.—Among the causes are exposure to cold, dampness, traumatism, pressure from fecal impaction and from pressure of the foetal head during delivery. It may be the result of toxic conditions, as diabetes mellitus, gout and tabes dorsalis.

Pathology.—There are seldom any anatomical alterations. In some cases an inflamed condition is present. There may be a hemorrhage or a collection of fluid in the nerve.

Symptoms.—The great symptom is pain extending from the point of exit of the sciatic nerve along a part or the whole of its length. Pressure points are the exit of the nerve from the sciatic notch, the point of bifurcation, the posterior cutaneous nerve of the thigh, in the popliteal space where the tibial nerve is given off, a point just below the head of the fibula where the peroneal nerve separates, and a point just behind the external and internal malleolus. Standing and moving cause pain. The duration of sciatica is from months to years. Relapses occur rapidly and repeatedly.

Diagnosis.—This is based upon the presence of pain along the course of the sciatic nerve and pain at the pressure points. Sciatic neuritis and neuralgia should, if possible, be distinguished.

SCIATIC NEURITIS.

1. Usually dependent upon wounds, tumors and traumatism.
2. The pain comes in paroxysms, and in the intervals there is paresthesia, or pricking and tingling.
3. Anæsthesia is often present.
4. There may be swelling of the nerve trunk, and tenderness to pressure.
5. There are trophic changes of the muscles, skin, hair and nails, and reaction of the muscles.

SCIATIC NEURALGIA.

1. Frequently the result of anæmia or malaria.
2. The pain is more constant.
3. Numbness, but little anæsthesia.
4. No swelling, distinct pain on pressure at certain points.
5. There may be wasting from disease.

Prognosis.—While of no immediate danger to life these cases are often obstinate and may be incurable.

Treatment.—The first indication is to remove the cause if possible. The patient should rest in bed, in an equable temperature and the limb be kept at rest; in some cases it may be necessary to use a splint for this purpose. Massage may be of service, but should be administered with great care.

Electricity may be employed. The positive electrode should be placed over the course of the nerve, the negative to the lumbar spine; treatment should be applied ten minutes daily. The injection of sterilized water into the nerve sheath is of service in many cases. Nerve stretching may be used as a last resort.

Arnica is of service in those cases resulting from traumatism; the parts are crushed, and as a result there

is more or less effusion of blood into the tissue; the patient complains of a soreness.

Bryonia.—Symptoms are greatly aggravated by movement of the parts; there is a history of rheumatism.

Aconite.—Cases result from exposure. The patient is restless and uneasy, and the parts are sensitive.

Belladonna.—Cases are attended with excruciating pain and tenderness along the course of the nerve. In some cases atropine acts nicely.

Gnaphalium.—Patient suffers intense pain along the course of the nerve; at times the pain is relieved by a sensation of numbness. Walking or any use of the feet causes a great amount of pain.

Colocynth.—There are paroxysms of pain and a partial paralysis with a sensation of numbness. The nutrition of the limb is frequently affected.

Ammonium muriaticum is indicated if the patient finds relief while lying down; pain is very severe while he is sitting, and is partially relieved while he is walking.

Rhus toxicodendron.—The right nerve is involved; the patient is worse during the afternoon; the pain is aggravated from rest, but is relieved from movement.

Nux vomica.—The pains are short, tearing and jerking in character; while they are made worse from motion and touch, they oblige the patient to move the affected parts almost constantly.

Mercurius.—He is worse at night; he is restless and constantly changing his position.

COCCYGODYNIA.

Definition.—This is a neuralgia of the nerve supplying the coccyx. The pain is aggravated while the patient is sitting or walking, or during the expulsive effort in evacuating the bowels.

Etiology.—The condition at times follows a difficult labor, or a fall striking and injuring the coccyx. A careful examination should be made with the index finger inserted into the rectum, the thumb on the outside grasping the coccyx to ascertain whether it is firm. By this method it may be found whether it is an inflammation or a fracture that is present.

Treatment.—Injuries to the coccyx should be treated by rest and the application of arnica cerate externally and the same remedy internally. In cases of difficult labor, the coccyx should be protected. If the parts have been broken their removal should be considered, but it is seldom necessary to resort to removal for a neuralgic condition if the remedies are carefully applied. Electricity is often of service, both the faradic and the galvanic current. Rectal suppositories containing some anodyne may be required. Douches of hot water if given regularly may be curative.

Cicuta virosa.—The pain is referred to the coccyx, and is tearing and jerking in character. There is more or less stiffness of the lower extremities. This remedy is valuable after injury or pressure during confinement.

Zincum metallicum.—There are aching, lancinating,

pinching pains in the coccyxgeal and sacral regions. The back pains and cracks when walking.

Rhus toxicodendron.—There are pains in the lower spinal region, especially when beginning to move the joints, the hip joints or the loins. There is frequently a history of rheumatism attended with a sense of weariness and stiffness, which is relieved after motion.

Hypericum should be studied in cases due to traumatism.

MIGRAINE.

Synonyms.—Hemicrania; sick headache.

Definition.—This is a periodical, unilateral paroxysm of pain confined to the fifth nerve. It is accompanied with nausea, vomiting, intolerance of light and sound, and inability for mental exertion. The brain for the time is prostrated and incapacitated.

Etiology.—In many cases there is an inherited tendency. Those who are compelled to repeat certain muscular movements which lead to fatigue of the subcortical motor centers suffer with the complaint, as writers and seamstresses. Those suffering from worry or diseases of women are subject to this neurosis.

Symptoms.—The attacks appear at irregular intervals, between which the patients are free from pain. For a day or two before the paroxysms there is usually a feeling of fatigue without apparent cause, with heaviness over the eyes, flatulence and indigestion.

The attacks appear with chilliness, nausea, vomiting and yawning, a general muscular soreness, with intolerance to light, noises, incapacity for mental exertion and pain of a sharp character, of great intensity and persistence. localized in either the temporal or occipital region of the left side.

The pain is rarely felt upon the right side and still more rarely upon both sides. Nausea and other symptoms may follow the onset of the pain rather than precede it. There is often a disturbance of the circula-

tion and temperature and an increase of saliva. In some cases the blood vessels are contracted, when the face is pale, the eyes and the pupils dilated. In other cases the vessels may be dilated. Then the face is flushed, the conjunctiva injected and the pupils contracted.

Motion, sound and light aggravate the case. The duration of the attack may be from a few hours to two or three days; the average being twenty-four hours.

Diagnosis.—This is easily reached. It may be mistaken for anemic, hyperemic, dyspeptic, bilious or neuralgic headache.

Prognosis.—While this complaint is not a cause of death, it is difficult to cure. The attacks decline in frequency after the patient has reached fifty.

Treatment.—Much attention should be given to the education of the patient. A careful study of each case should be made that the patient may avoid such conditions and articles of diet as precipitate an attack. Some cases may be injured by an excess of proteids, yet the eliminating of all such articles will also be injurious. Every case must be a law unto itself. Articles of food most easily digested should be favored. The bowels should be favored to move regularly by diet, habits and exercise.

The patient should live in a well ventilated room, or, if possible, sleep in the open air. A gouty patient should omit malt liquors, wines, sugar and starches from the diet. If the patient is anemic he should partake of more animal foods as fats and cod liver oil. If

dyspepsia is a prominent symptom carbohydrates should be avoided. Neurotic subjects should avoid coffee, tea and tobacco. An occasional patient can avoid an attack by taking a cup or two of coffee.

Plain cereal foods may be allowed, but the addition of cream and sugar is usually injurious. Milk through lactic acid fermentation produces trouble.

Asparagus, young peas, beans, string beans and stewed celery may be allowed, but tomatoes, rhubarb, cauliflower, cabbage and corn should not.

Meats should be partaken of in moderation. The white meat of poultry and broiled fish are to be preferred to red meats.

Pastry, new bread, richly cooked foods, condiments, shell fish, cheese, sauces and desserts should be taken with great care. All food that may produce ptomain poisoning should be avoided, as well as late suppers. Some patients cut out one article of diet after another till they suffer from inanition.

Thyroid.—The thyroid treatment has been found serviceable in several cases of migraine in which there was an insufficiency of the thyroid gland. The symptoms complained of, apart from the migraine, are chilliness, brittleness of the nails, the early falling out of the hair and teeth, constipation, pain in the joints with scanty and painful menses in females.

Amyl nitrite.—This remedy is of service both as a diagnostic and therapeutic agent, where there is a condition of arterio-sclerosis to relieve the spasmodic condition and help to relieve the pain. The transient ac-

tion of this remedy is such that it is of little service. The use of sodium nitrate in 2 to 3 grain doses will be found of much greater duration and more serviceable.

Iris versicolor.—The sick headache begins with a blur before the eyes. There is a dull, heavy or shooting, throbbing pain, mostly in the forehead, which is accompanied by nausea, vomiting and great mental depression. The attack is apt to recur at regular intervals. The pains are intense and throbbing in character. Vomited material may be either bitter, sour or both.

Sanguinaria Canadensis.—This is a most excellent remedy in cases in which the pain begins regularly. The pain commences in the occiput, spreads over the head and settles over the right eye. It is sharp, lancinating, and at times throbbing. As the height of the attack is reached the patient cannot bear either sounds or odors, and nausea and vomiting appear. He selects a quiet, darkened room and remains quiet. The pain often begins in the morning, increases gradually during the day till night, when it appears as though the head would burst.

Stannum.—The headache gradually increases until it reaches its acme and then gradually disappears. The patient is prostrated. Pain begins over one eye and gradually extends to the whole head.

Sepia is indicated in cases of hemicrania when the pains locate over one eye. Pains are throbbing in character, and the patient cannot stand light, noise or

motion. In women there is disturbance of the menstruation, and the patient is often subject to sexual excesses.

Gelsemium.—The pain begins in the nape of the neck and extends to the temples; it is throbbing in character. The patient is extremely sensitive to sounds. There is a disturbed vision, double vision or dimness of the vision.

Niccolum sulphuricum.—The pain is so intense that the patients groan with it. There is a sensation of great oppression and stupefaction.

HEADACHE.

Synonym.—Cephalalgia.

Definition.—This is a pain in the head that is reflex, dependent upon an affection in some other organ. These headaches may be the result of structural changes, congestion and anemia, or they may be toxæmic as a result of syphilis or rheumatic fever.

Treatment.—Relief of the primary affection permanently removes the headache, yet the physician is frequently called upon to prescribe for the headache.

Aconite.—Pains are piercing, throbbing, stupefying in character; headache with fever, especially when produced by exposure to cold, draughts or suppressed perspiration. There is roaring in the ears, with chilliness, restlessness and wakefulness. The patient is aggravated by noise, light or motion; catarrhal and menstrual headaches.

Belladonna.—The pains are sudden in appearance and disappearance, but last indefinitely. They are often accompanied by vertigo, redness and swelling of the face, and are aggravated by noise, light, shock or contact. There are catarrhal, gastric and rheumatic headaches, especially in lymphatic or scrofulous subjects; there is cerebral congestion.

Gelsemium.—There is catarrhal and hysterical headache, appearing suddenly, with vertigo, dimness of sight and double vision, often accompanied by slight nausea and ameliorated by shaking the head. The pain

is in the back of the head and neck, extending to the shoulders, also across the forehead and temples. It is relieved by profuse urination.

Allium cepa.—This remedy benefits catarrhal headache with coryza and copious watery discharge from the nose and eyes, being worse in the evening and better in the open air.

Euphrasia should be compared with *Allium* in catarrhal headache accompanied by profuse watery coryza, smarting of the eyes, lachrymation, photophobia or sneezing and discharge of mucus.

Chamomilla.—The pains are stinging, stitching, tearing and pressing in character. The pain is in the forehead, temples and vertex, and is aggravated by mental exertion, but ameliorated by motion. It is especially suited to children. It is indicated in arthritic and rheumatic headaches, especially when attended by vertigo, nausea and vomiting.

Berberis vulgaris.—The pains are lacerating, darting, tensive or aching in character. The face is pale, cheeks sunken, eyes with bluish-black circles around them. It relieves arthritic, menstrual and rheumatic headaches, especially when complicated with hepatic troubles. Pains are aggravated by motion, stop during the afternoon and are ameliorated in open air.

Phytolacca should be studied in rheumatic cases when pains are sharp, shooting or dull and heavy, and seated in the forehead and temples. They are accompanied by vertigo, dimness of vision and nausea, and are aggravated by damp weather. There are gastric

and rheumatic headaches, especially in syphilitic subjects.

Iris versicolor is indicated in gastric cases when the pains in the head are shooting and throbbing, or dull and heavy in character, and their seat is chiefly in the forehead. They are accompanied by nausea and vomiting, first of sour watery fluid, then of bile. There are paroxysms of pain followed by copious emissions of urine and vomiting with great burning and distress in the stomach. They are bilious and gastric headaches, always beginning with a blur before the eyes.

Nux vomica should be remembered when there are pains pressing, drawing and stupefying in character, affecting the whole or any part of the head, but especially the forehead. They are accompanied by more or less dizziness, nausea and inclination to vomit, and are aggravated by motion, stooping, moving the eyes, noise, light and mental exertion. It is used for gastric and bilious headaches, attended by constipation, and brought on by debauch, excess of wine, coffee, sedentary habits, or too close mental application.

Bismuthum subnitrate should be studied in gastric headache complicated with gastralgia. Pain comes on immediately after eating and is relieved by vomiting; it is chiefly frontal, and aggravated by motion.

Hydrastis canadensis is indicated in catarrhal headache, especially in debilitated subjects, who are troubled with mucous discharges. Patients have pale face with worn and weary appearance and are myalgic. Pain is

in the scalp and muscles of the neck. There is discharge of thick white mucus from the nose, with cachectic condition, loss of appetite and fainting turns. These are subacute and chronic cases.

Gambogia is indicated in gastric headache, with compressive and heavy pains in the forehead and temples, accompanied with vomiting, purging and fainting. The patient is drowsy and there is a heavy feeling in the whole head, with pain in the small of the back, watery diarrhœa, with colic and tenesmus. The headache is ameliorated in the open air.

Podophyllum is of service in gastric, rheumatic and bilious headaches, especially when associated with torpidity of the liver, or when alternating with diarrhœa, or when accompanied by bitter taste in the mouth, giddiness, glimmering before the eyes. There is nausea, bilious vomiting and purging, worse in the morning, better from pressure and from lying quiet in the dark.

Sulphur should be studied when there is a constitutional dyscrasia with catarrhal and gastric complaints, especially in scrofulous patients. It is useful when associated with constipation, morning diarrhœa or hemorrhoids or when caused by abdominal plethora, suppressed eruptions or mental exertion, or when beginning, increasing and ending with daily course of the sun. The headache is aggravated by motion, stooping, wet and cold weather, heat of the bed or mental exercise, and is ameliorated by pressure and moderate warmth.

Sanguinaria is of service in gastric and rheumatic

headaches, which are most severe on the right side, affecting especially the frontal region and temples, and are accompanied by nausea and vomiting and burning in the stomach; aggravated by motion, light and noise; ameliorated by quiet, darkness and sleep.

Crocus sativus is indicated in menstrual headache, of a pressive, burning and throbbing character, affecting the forehead, temples and top of the head. There is vertigo with confusion and waves before the eyes at the time of the climacteric, most severe at the time corresponding to the monthly periods, lasting two to three days and nights, with excitable and variable dispositions.

Lilium tigrinum is of service in menstrual headache, especially when caused by mental emotion. The pain is worse over the right eye; is ameliorated by moving about in the open air, with scanty and profuse urine after the headache.

Gossypium herbaceum is indicated in menstrual headache, with drawing and stinging pains extending from the temples to the center of the forehead. There is nausea, with inclination to vomit; the menses last only about twenty-four hours and are scanty and painful.

INSOMNIA.

This is sleeplessness which in some cases is the only complaint of the patient ; in other cases it is a particular feature of a diseased condition. If long continued the patient suffers from exhaustion, emaciation, loss of energy and deranged digestion.

Treatment.—There is a cause for all of these cases which should be sought out if possible.

The patient should cultivate regular habits and quietness. The bed should be comfortable and warm, but the room should be cool. The stomach should not be over-loaded, but a glass of hot milk or broth on retiring is often beneficial. If wakefulness comes during the night, a cracker may be eaten. Gentle massage, a warm bath on retiring, or a cold sponge to the spine is helpful. With improvement of the patient's health electricity is of service.

Coffea is of service when the patient is wide awake from over-excitement, with crowding of ideas and great mental strain.

Chamomilla should be studied in the insomnia of children. There is starting during sleep, twitching of the muscles of the hands and face, colic, with one cheek red and the other pale. The head and scalp is covered with a hot sweat.

Calcarea carbonica should be studied in cases of prolonged wakefulness, as precursor of disease. The patient sees visions on closing the eyes, starts and twitches at every noise, and the tongue gets dry.

Belladonna.—The patient is drowsy, but cannot sleep, and is fidgety; he starts when just commencing to sleep. There is cerebral hyperemia.

Ignatia.—Subjects are continuously worried, grief stricken, mentally depressed and sighing.

Sulphur.—The patient goes to sleep at first, is roused and then cannot go to sleep again.

Cannabis Indica.—There is nervousness, restlessness, and often neuralgic pain; hysterical condition that renders sleep impossible.

Hyoscyamus.—In children who twitch during sleep, cry out, tremble and awake frightened.

Stramonium.—Intense nervous excitement, restless sleep, mental disturbances, possibly maniacal excitement.

Selenium.—The patient sleeps in cat-naps; awakes often and easily at precisely the same hour early each morning, when his prevailing complaints are worse.

EPILEPSY.

Synonyms.—Falling sickness; Fainting sickness; Fits.

Definition.—This is a disease of the nervous system characterized by a sudden convulsive seizure of temporary duration and loss of consciousness, which is attended at first with more or less tonic spasms, which, later, become clonic.

Etiology.—In many cases this is indefinite. A neurotic family history, worry, anxiety, mental depression or fright, peripheral irritation of nerves, thickening of the meninges, dyspepsia, syphilis and internal diseases are factors.

Pathology.—There is no definite pathology associated with epilepsy as yet.

Symptoms.—These are divided into two groups, "Le grand mal" and "Le petit mal." The attack of the former is preceded with more or less pronounced and curious sensations known as the aura. The attack is sudden; the subject with no warning falls suddenly, often with a peculiar cry, loss of consciousness and pallor of the face. At first the body becomes rigid; in a few moments this is followed by a clonic convulsion, and still later by coma, which may last for hours. From this the subject awakens with confusion of thoughts and expression, but without any knowledge of what has transpired unless he has injured himself by falling or biting the tongue during the convulsion.

The petit mal is indicated by a mere attack of vertigo; the consciousness may be preserved, or there is a period of absent mindedness with a slight convulsion or coma of short duration. The patient may be in the act of conversation, he suddenly pauses for a moment, there is a slight stare and he takes up the thread of the conversation and goes on.

Epilepsy does not, as a rule, injure the mental functions unless the recurrence has been very frequent or bromides have been administered in large doses for a prolonged period.

Diagnosis.—Careful attention to the appearance of the seizure is usually sufficient to differentiate from other similar conditions.

Uremic convulsions may closely resemble epileptic attacks; but with uræmia there are dropsy, general edema, albuminous urine and casts.

Prognosis.—Many of these cases are ameliorated, and occasionally one appears to be cured, but the majority of cases persist.

Treatment.—These patients require more rest than many nervous subjects. They should rest much in bed; some are benefited by a rest cure. Exercise should be taken with moderation, massage being demanded in many cases to maintain the tone of the muscular system. During the attack the patient should be protected from injuring himself. Attention should be paid to the gastro-intestinal track to avoid fermentation, dyspepsia, auto-intoxication and constipation. Stimulants should be avoided. The patient should be

kept as cheerful as possible, and have cheerful, hopeful attendants.

The diet should be carefully prescribed, as many of these patients are gluttons, and overload the stomach continually. They should eat slowly, and thoroughly masticate the food.

The diet should be one that is easily assimilated and digested. In adults meats may be allowed once a day. Milk, cereals, bread, vegetables and fruit should fill in the remainder of the dietary. A diet free from sodium chloride is beneficial in some cases, while in others the results are unfavorable.

The remedy should be selected from the totality of the symptoms and not from the characteristics of the attack.

Cenante crocata.—There are convulsions attended with vertigo, nausea, vomiting, unconsciousness, coma or deep sleep. There may be convulsions with death-like syncope, coldness as if dead, tetanic contraction of the muscles of the jaws and limbs; epileptiform convulsions in all cases, pupils dilated, eyeballs turned up, frothing at the mouth, face swollen and livid and madness with the convulsions.

Indigo should be studied in neurasthenic, hysterical subjects who are exceedingly depressed and melancholy. There is great languor and weariness; unusual feeling of prostration, especially in the lower limbs; convulsions preceded by a fit of the blues. The aura seems to come from the abdominal ganglia; sometimes the attack begins with dizziness.

Cuprum and *Cuprum aceticum*.—There is a tendency to convulsions following each other in rapid succession, the convulsive state rather remitting than completely intermitting. The aura emanates from the region of the stomach. The patient is very restless after the attack, with headache, soreness of the flesh and prostration; convulsions begin in the extremities, hands and feet are cold, the face is livid or pale, and there is involuntary discharge of urine or hysterical mood.

Hydrocyanic acid should be studied in recent cases, attended by sudden and complete loss of consciousness and sensation; body is blue and cold. The fit quickly merges into a comatose condition, interrupted only by renewal of the convulsive movements, which usually begin in the extremities and afterward become general. There is great drowsiness and prostration after the fit.

Cannabis Indica.—Fits are immediately preceded by a feeling of extraordinary mental and physical vigor. The mind and body are in a state of ecstatic exaltation. Some cases are preceded by active cerebral congestion, throbbing, ringing and buzzing in the ears, with sensitiveness to light and noise. On regaining consciousness, violent shocks pass through the brain.

Glonoïn.—For those of a nervous temperament. The attacks are preceded by flushed face, headache, ringing in the ears and other evidences of cerebral hyperæmia. There is increased action of the heart and arteries, nausea, vomiting, dizziness and oppression for breath. Convulsions tend to become more frequent.

Belladonna.—Decided brain symptoms develop previous to the attack; headache, throbbing in the temples, dilated pupils, intolerance of light and redness of the face. After the attack the patient is filled with anxiety, fear of imaginary things. He has disturbed sleep, vertigo, peevishness, flushed face and starting during sleep. Convulsions begin in the fingers and toes.

Cocculus Indicus.—Patients are debilitated and nervous with sluggish circulation; a sort of passive congestion, veins standing out like whipcords. They have vertigo and nausea with great lassitude, making it difficult to stand firmly. Convulsions begin in the fingers and toes.

Nux vomica.—Subjects are thin and spare and suffer from weak and disordered stomachs, tender to the touch; pressure over the stomach renews the attack. There is convulsive twitching in the limbs and trembling of the whole body, spinal epilepsy.

Argentum nitricum.—The cases are neurotic subjects whose pupils are dilated a day or two before the attack; aura rises slowly from the region of the stomach, which feels oppressed as by a load resting upon it; head feels full and stupid; mind is exceedingly depressed and melancholy. Convulsions are sometimes preceded by active cerebral congestion.

Thaspium aureum.—There are flushed cheeks, hot head, visible palpitation of the carotid and temporal arteries at night; great exhilaration or great mental depression, hysterical mood. Headache with nausea precedes the attack.

Narcissus, *solanum Carolinense*, *verbena hastata*, *ferrum cyanatum* and *thyrodine* have each been curative in certain cases.

Occasionally dangerous complications arise, when *chloroform* or a *nitrate* may be required.

The *bromides* are extensively employed, and while they may restrain the attacks it is doubtful if they ever permanently relieved a case.

JACKSONIAN EPILEPSY.

Synonym.—Cortical Epilepsy.

Definition.—This is a disease of the nervous system characterized by convulsions and dependent upon an irritation of the cortical motor centers of the brain.

Etiology.—There is an irritation of the cortex of the brain, the result of an exostosis, depressed fracture, tumors, tubercular focus, meningitis or syphilis.

Symptoms.—There is a tendency to paralysis of the parts supplied by the nerve from the involved center. There are spasms which at first are local, but as the disease advances they become more general. Consciousness is not lost. There may be tingling and other sensory phenomena of the involved areas.

Treatment.—This is surgical; those cases in which syphilis or tuberculosis is the cause, medicinal treatment is of service.

HYSTERIA.

Definition.—This is a combination of functional affections of the nervous system, characterized by a disorder of the higher centers of the brain, as will, reason, emotion, imagination, as well as motor and sensory disturbances.

Etiology.—Women are more frequently affected than men. There is a neurotic taint in the majority of these cases, but gout and tuberculosis are frequently antecedents of hysteria. The periods of puberty and adolescence furnish the majority of these cases. Mental and moral strain, over-work, worry, grief, shocks, fright and traumatism enter into the history of the majority of the cases. It may become epidemic in small communities, as schools, nurseries and remote villages, as the result of imitation.

Pathology.—There is no constant structural lesion that is common to hysteria. Hysterical manifestations may develop during the prevalence of organic disease.

Symptoms.—Hysterical fits or paroxysms develop gradually with sighing, crying, laughter, talking and gesticulation, or a sense of choking, dyspnoea or a ball in the throat (globus hystericus). During the fit the unconsciousness is only apparent, the patient being aware of what is going on about her. She may throw herself, struggle and clench her hands. The surface of the face and the pupils are normal. The paroxysms end with sighing, laughing, crying and yawning.

The hysterical state is shown by mental, sensory and motor disturbances. The mental disturbances show marked pains along the spine. Motor disturbance is shown in every form from hysterical paroxysms to phantom tumors, hystero-epilepsy, trance, ecstasy and everything that human mind might imagine.

Diagnosis.—Hysteria has simulated every known condition and is therefore difficult to diagnose.

HYSTERICAL CONVULSION.

1. The attack sets in gradually, is attended with screaming and brought on by emotion.
2. The limbs are thrown about, the pupils respond to light, while the patient may bite his fingers, lips, hands, or any person about him.
3. The patient has control of the sphincters.
4. Consciousness is retained, but may be perverted, and there is apt to be talkativeness.
5. The attacks last ten minutes or more.
6. Opisthotonos is common.
7. Attacks appear only in the presence of a second person.
8. Careful in the attack not to injure himself.

EPILEPTIC CONVULSION.

1. Sets in abruptly, often without any cry.
2. The convulsion pursues a regular course and is associated with cyanosis, biting the tongue and insensibility of the iris to light.
3. The feces and urine may pass involuntarily.
4. Loss of consciousness is complete.
5. Epileptic attacks last but a few minutes.
6. Opisthotonos is seldom present.
7. May appear at any time or place.
8. Falls at any point.

The hysterical subject may be an epileptic.

HYSTERIA.

1. Never has a divergent strabismus.
2. Urine may be retained, but there is never incontinence.
3. Temperature is elevated, but no trophic changes occur with functional disease.

MENINGITIS.

1. There may be a divergent strabismus.
2. May be incontinence.
3. These may occur.

Prognosis.—Death has never been known to occur from a hysterical fit.

Treatment.—There is possibly no condition that requires such a large degree of tact to manage. The physician must, by his thorough methods and sublime tact, win the confidence of his patient. She must be absolutely certain that he has a perfect knowledge of her case and can cure her. Should he hesitate or doubt he has lost his influence, and should be careful of what he says even if she appears to be unconscious. In some cases cures have been accomplished by giving a very grave prognosis, as the necessity of sending her to an asylum if the spells continue. He should be cautious about showing more than professional sympathy, otherwise he may find himself in a most embarrassing position, as many of these crave sympathy.

During hysterical paroxysms, inhalations of ether or chloroform, or ether internally, in teaspoonful doses, well diluted with water, and chloroform, five drops diluted with a spoonful of water, are of service.

Hyoscyne hydrobromate, 1/200 to 1/100 of a grain;

lobelia or apomorphia, given hypodermatically, are of service.

Asafætida.—The patient is hysterical, hypochondriacal, hyper-sensitive and subject to fits of great joy with occasional bursts of laughter; is apprehensive of dying. She has hysterical spasms, the œsophagus being chiefly affected; sensation of a ball rising in the throat; soreness in œsophagus; nervous palpitation, with small pulse and colic with rumbling in abdomen. The patient seems full of gas, all of which comes up, none passing downward.

Aurum.—The patient is melancholic with a suicidal mood, a longing for death. She is full of fear; a mere noise makes her anxious. She is alternately peevish and cheerful, and has hysterical spasms, with alternate laughter and crying with great nervous weakness. There is a fine eruption on lips, face and forehead.

Cocculus.—The thoughts are fixed upon one unpleasant subject, so she observes nothing about her. There is a contractive sensation in the trachea, as if irritated by smoke, inducing cough with nervous palpitation of the heart and paralytic immobility of the lower limbs.

Coffea cruda.—The patient is hypersensitive. There is insomnia when the ideas roll in upon the mind; the head is full of ideas.

Hyoscyamus.—The patient indulges in much silly laughter and acts foolishly. There is jerking and twitching of muscles during spasms with constriction.

of throat and impeded deglutition with nocturnal dry cough. She is disposed to uncover herself and go naked.

Ignatia amara.—This is useful for a nervous temperament with sadness and sighing, and an empty feeling at pit of stomach. The patient is full of grief with choking sensation from stomach up to throat and rumbling in abdomen. There is single starting of limbs when going to sleep.

Moschus is indicated in cases of hysteria and hysterical paroxysms with great anxiety and palpitation of the heart. There is great inclination to scold. She talks continually of her approaching death. There are hysterical paroxysms with fainting turns, succeeded by headache, great dryness of the mouth, copious colorless urine and great tendency to involuntary stools.

Nux moschata is indicated in nervous hysterical people with laughter. Everything seems ludicrous; she talks loudly to herself. There is great dryness of mouth and tongue when sleeping. The head feels full and as if expanding. There is enormous distension of the abdomen with flatus after meals, and great sleepiness and inclination to faint.

Platina should be remembered in those who are proud and egotistical. The patient feels as if she would lose her senses and die soon. There are spasms alternating with dyspnoea and sensation of suffocation and twitching of single muscles, trembling and shivering, worse at dawn. Menses are profuse, dark and thick.

Castoreum is indicated in cases of nervous hysterical women, who are greatly prostrated. They are irritable and weak as a result of exhausting sweats, and are "pretty near the hysterics." They are constantly yawning and cannot endure the light. They have frightful dreams, with tearing headaches and soreness of the scalp.

Cypripedium pubescens is indicated in mild cases of insomnia, with restlessness and twitching of the limbs. The patient desires to talk and pleasant ideas are constantly crowding the mind.

Scutellaria.—Nervous fear predominates everything. The patient is obliged to move about.

Sumbul is indicated in hysteria of anemic women. There is a sensation of constriction, choking, a constant desire to swallow and the belching of gas from the stomach. There is nervousness, palpitation of the heart and irregular pulse.

Valeriana should be studied in cases of hysterical, nervous temperament; the intellectual faculties predominate and the patient is of a changeable disposition.

Actea racemosa.—This remedy should be remembered in those with more or less constant rheumatic pains in hysterical subjects.

NEURASTHENIA.

Synonyms.—Nervous Debility; Nervous Exhaustion; Brain Fag; Spinal Irritation; Nervous Prostration.

Definition.—This is a debility of the nervous system, functional in origin, involving both the cerebro-spinal and sympathetic nervous systems.

Etiology.—Mental emotion and worry, over-work, excessive expenditure of nerve forces over the daily production, neurotic temperaments, alcohol, tobacco and sexual excesses are some of the causes.

Symptoms.—These may extend to any organ. The nerves supplying the organ are exhausted and tired. There is irritability and weakness of the mental faculties, so that the patient is unable to concentrate the thoughts; there is pain and pressure in the head, vertigo, restlessness, fear, a sensation of weakness, spinal hyperæsthesia, and weariness and depression, with many other symptoms that attend this condition, as palpitation of the heart, nervous dyspepsia, coldness of the hands and feet, chilliness followed by flashes of heat and slight sweating. There is insomnia, unpleasant dreams and a fatiguing sleep.

Diagnosis.—A careful study of the case should enable the physician to distinguish the exhaustion due to nervous debility from that due to prolonged organic disease.

NEURASTHENIA.

1. There are no paroxysms.
2. Not present.
3. All the symptoms are quiet.
4. Common in patients otherwise normal.
5. Both males and females.
6. Patient is debilitated and recovers slowly.

HYSTERIA.

1. There are hysterical paroxysms.
2. Globus hystericus, ovarian tenderness, and general and local anæsthesia are present.
3. More active and violent.
4. Often in those of unbalanced mentality.
5. More in females.
6. May occur in those of good health and may recover suddenly.

NEURASTHENIA.

1. In the neurotic, but patient may be plethoric.
2. Not necessarily any heart murmur, and the pulse may be normal.
3. Pallor may be absent.

ANEMIA.

1. In those with severe diathesis.
2. Frequently a hemic murmur, and pulse is small and weak.
3. Pallor is present.

Prognosis —The prognosis is good unless mental symptoms develop or the etiology is not removable.

Treatment.—The cause of each case should be sought out and removed if possible. The patient should have prolonged rest, both mental and physical. Mental diversion is beneficial in many cases; short trips and temporary change of climate should be encouraged. As we are dealing with a functional derangement rather than an organic disease, we may expect much from systematic thorough treatment. After a complete rest the next most important factor is a nourishing diet that will supply the food for tissue

change and exhaustion. The third important factor is mental diversion. This is often most difficult to secure. Many times it is easier to break away from an occupation entirely than partially.

In many cases the attendant is of great importance. He or she must be tactful, cheerful, congenial and not over-sympathetic. Friends, who are constantly inquiring of the patient's condition and are continually bringing in business and domestic gossip, should be kept out.

It may be of service to start the treatment with from six to twelve weeks of complete rest. During the first part of this period the rest should be absolute. In from three to five weeks, depending upon the severity of the case, the patient may be given more latitude and may be allowed to sit up a little, feed herself and other like tasks, the result being carefully observed. The exercise should be followed by a warm tepid bath and thorough but careful massage. The following morning a salt glow or a cold rub should be introduced, the effects being watched to see if reaction is good. In the afternoon a careful massage may be introduced to give tone to the muscles. At first the massage should be carefully given, while later the period of time may be increased. Constipation may become an annoying factor, when a warm soap-suds enema may be used or half an ounce of olive oil given daily.

The diet is an important factor in the management of these cases. The patient should be given all the

nourishment he can assimilate. The stools should be watched to observe if the food is being thoroughly digested. If the patient is greatly exhausted he should not go more than four hours without food. Milk is excellent in many cases. It may be given pure or as buttermilk or skimmed milk. It should be given in small quantities at first. This should be gradually increased and mixed with lime, barley, vichy or rice water, or one of the prepared foods should be added to it. After from five to six days chopped or poached eggs may be added. Gradually other food may be added till at breakfast oranges, or grape-fruit, bacon and eggs, cereal, dry toast and a cup of milk may be given. At times a light luncheon at 10 A. M. may be introduced. At noon soup, mutton chops or beefsteak, baked potatoes, beans, peas, beets, cornmeal pudding and stewed fruits may be allowed. Supper should consist of articles of food that are nutritious, as minced lamb and chicken, eggs in some form except fried, apple sauce, peaches, berries, cream, cocoa, bread and butter.

Acidum picricum should be studied in wasted, worn-out systems and for those suffering from the effects of close application to study, work, business, and as a result have become anæmic and neurasthenic. Patients complain of a heavy, tired sensation over the body, especially the limbs, which is worse from the slightest exertion or excitement, mental exertion or over-work. They complain frequently of burning along the spine.

Zincum bromicum.—This is indicated in the brain fog of business men, when it is attended with violent periodical pain in the head and a tendency to dementia and melancholia in cases of cerebraesthesia caused by anemia, mental and bodily weakness, with tendency to paralysis of the lower extremities. This remedy is preferable to zinc alone, as it has a quicker action and is more readily absorbed.

Zincum picricum.—This should be studied in cases of cerebraesthesia and nervous exhaustion due to sexual excesses and over-work. There is profound neurasthenia and nerve exhaustion.

Zincum phos.—The patient appears prematurely old and complains of debility, loss of sleep and mental anxiety, with loss of memory.

Phosphorus.—This is suited to tall, slender people with fair skins, blonde hair, with sensitive natures, who complain of great heaviness and weariness from the least exertion, extreme mental and physical prostration, bruised feeling in the back and limbs, myelasthenia.

Chininum sulph.—The patient feels exhausted and weak and the slightest exercise produces palpitation of the heart. There is neurasthenia following severe and exhausting illness, loss of vital fluids or over-exertion, either physical or mental, nervous trembling, weakness and trembling of the lower limbs and coldness of the extremities.

Strychnia phos.—Patients are nervous subjects who complain of aching pain, sometimes burning, extend-

ing from the back to the front of the chest, causing a feeling of nausea and anxiety. There is tenderness or pressure over the dorsal region, sleeplessness, cold feet which are covered with a clammy perspiration, great weakness of the lower limbs from exhaustion of the spinal motor nerve cells, myelasthenia.

Nux vomica.—Cases in thin, hypochondriacal subjects who complain of nervous debility arising from debauchery and dissipation, late hours, highly seasoned food and abuse of ardent spirits. The remedy is indicated in the mental exhaustion of students and professional men, insomnia produced by over-work, business cares, etc.; also in all cases of a disordered stomach and constipation.

Calcareo phos.—Patients have grown rapidly and suffer from nervous prostration, with great depression of spirits. They complain of sore, bruised feeling in the back, with inclination to lie upon it, and coldness and weakness of the lower limbs from defective circulation in them.

Calcareo hypophos.—Patients suffering from neurasthenia attended by profuse night sweats. There is sleeplessness, depression of spirits, loss of appetite and emaciation. The patient has a pale and haggard appearance and complains of habitual coldness and venous congestion of the limbs; also of debility and loss of virile power.

Arsenicum.—He has a constant desire to lie down, a sensation of weakness in the small of the back, weakness of the lower limbs, preceded or accompanied by

copious watery stools, trembling of the limbs from debility, thirst for small quantities of water, sleeplessness, restlessness, especially at night.

Erythroxyton.—Patients have general nervous debility, the slightest exertion being attended by fatigue. There is mental depression, with anxiety and palpitation of the heart; oppression of breathing arising from nervous debility; sleeplessness and disinclination to work or move about; constipation, with abdominal distension; fainting spells from nervous weakness and coldness of the limbs.

Ignatia.—Nervous subjects complain of oppression of the chest and loss of breath from weakness, weakness of memory and depression of spirits; they are disposed to weep from the most trifling causes. There is loss of appetite, with feeling of repletion after swallowing a mouthful or two of food; there is palpitation of the heart on rising in the morning or after eating and complete absence of the sexual desire. The face is wan and pale, and he is sleepless and full of fanciful apprehensions.

Phosphoric acid.—Subjects grow rapidly, are prematurely old and thin, and suffer from a general debility, with feeling of extreme weakness and prostration. They have cold sweats during the day or after making any physical exertion; loss of all virile power and profuse night sweats, followed by chilliness. The patient is mentally as well as physically depressed.

Physostigma.—This is indicated with irritable spine, nervous headache and mental exhaustion; the eyes feel

weak, swollen and smart; there is a sore feeling on the tip of the tongue which feels as if scalded. There is aversion to cold water and exertion tends to produce nausea.

Avena sativa.—This is useful for the neurasthenia of business and professional men, teachers, and women who have become exhausted by worry and household cares. There is coldness of different parts of the body depending on the weakness of the circulation from lack of nerve force, cerebrasthenia.

INFANTILE CONVULSION.

Synonym.—Eclampsia.

Etiology.—Gastro-intestinal irritation is a common cause, as are intestinal parasites, otitis, phimosis, scarlet fever, pneumonia, whooping cough, rickets and epilepsy.

Symptoms.—Of these the sudden attack or the spasm, which begins most frequently in the right hand, is the most common. This may have been preceded by restlessness, grinding of the teeth and muscular twitching. During the spasm the eyes stare, are fixed or may roll upward; the body is stiff and the respirations are suspended. The spasm is usually tonic, but may become clonic in character. Sleep often follows the spasm or the child may be stupid and pass into a coma. If due to rickets or intestinal disorders, there may be severe seizures, one after another. There may be slight paresis if the attack is limited to one side. The temperature is raised during the attack and there may be involuntary evacuation of the bowels.

Prognosis.—If the convulsion attends an acute infectious disease, an intestinal or peripheral irritation, recovery is the rule. If they follow meningeal disease the prognosis is unfavorable, as are those of an epileptic character.

Treatment.—The cause should be sought out and if possible removed. If due to overloaded stomach or bowels, these should be relieved by an emetic or an enema.

During the convulsion the child should be placed in hot water (90° F.) with a cool towel to its head. In some cases mustard may be put in the water and in others a few whiffs of chloroform may be required.

The underlying disease should be sought out and treated as indicated.

Belladonna is required with flushed face and hot, violent throbbing of the carotids. There are indications of cerebral congestion, starting and jerking during sleep.

Veratrum viride should be remembered with extremely high temperature.

Chamomilla should be studied if the convulsion appears after a fit of anger. There is great nervous irritability with restlessness, moaning and groaning. One cheek is red and the other is pale.

Ignatia is indicated if the convulsion appears during dentition and the patient is of a most nervous temperament.

PARALYSIS AGITANS.

Synonyms.—Shaking Palsy; Parkinson's Disease.

Etiology.—It is a disease of advanced years (49 to 70). There are more men affected than women. Fright, trauma, mental emotion and a neurotic family history are favorable to its development.

Pathology.—This is not determined. It is classed as a neurosis, while in some cases it would appear that diseases of the pons, medulla or spinal cord are responsible.

Symptoms.—The first symptom noted is a slight tremor of one hand, which extends to the foot on that side, gradually the hand and foot of the other side are involved. The tremor gradually increases in rate to from three to five vibrations a second. In some cases it continues during sleep. It will cease temporarily during voluntary motion. However, it increases after a short period of rest. After a period of time muscular rigidity and weakness occur in the affected muscles, resulting in the characteristic attitude. The head is bent forward, the shoulders stoop, the thighs are adducted and the knees more or less flexed. The elbows are slightly flexed, the wrists extended and the face is expressionless. The gait is affected, the steps being short and the patient appearing to run. The voice is often high pitched and the thumbs and fingers present an appearance of pill rolling.

Diagnosis.—In typical cases this is easily made. It

should be distinguished from senile tremor, as the head is first affected; the rigidity is not present. Multiple sclerosis is distinguished by the scanning speech, nystagmus and intentional tremor. Post-hemiplegic tremor gives a history of a paralytic stroke, unilateral paralysis and increased reflexes.

Prognosis.—This is unfavorable, but the patient may survive many years.

Treatment.—The patient should lead a quiet life. Excitement of all forms should be avoided. A warm bath should be taken at least once a day. General massage should be persevered in. Hypnotic suggestion may be of temporary benefit. The patient should be gotten up from the chair and slight exercises given. The assistant should stand in front of the patient, take him by the hands and pull him up to his feet. This same method should be adopted when letting him down.

Electricity in the form of the static negative insulation for from ten to twenty minutes followed by the static breeze along the spine, is of service. Galvanism, the positive pole on the forehead and the negative on the neck, is beneficial.

Hyoscyamin hydrobromate 4x to 5x will afford marked relief for a time, but the effect will become exhausted and the 3x will be required. A dryness of the throat is produced by the use of this agent.

Sulphate of duboisine may be employed in much the same method and with the same results.

Gelsemium has afforded relief in many cases.

Veratrum viride has been employed to allay the tremor for a time at least.

Zinc bromide and *bromide of camphor* have been used with benefit in many cases.

Mercurius corrosivus should be studied.

Plumbum, *tarantula*, *agaricin*, *scutellaria* and *asa-fætida* should be compared in this type of cases.

VERTIGO.

Synonyms.—Dizziness; Swimming of the Head; Giddiness.

Definition.—This is a consciousness on the part of the patient of a disordered equilibrium of the body.

Etiology.—This may be the result of disease of the brain and spinal cord, a central neurosis. It may be from circulatory disorder, traumatism or infectious disease. Aural or auditory vertigo is called Ménière's disease and is dependent upon disease of the semi-circular canals and cochlea. Gastric vertigo is a common form dependent upon gastric or intestinal dyspepsia. Nervous vertigo is associated with sick or nervous headache and is often associated with the use of tea, coffee or alcohol. Senile vertigo results from disorder of the cerebral circulation.

Symptoms.—Whatever the variety of vertigo, the leading symptom is either the sensation that everything is revolving about the patient or that the patient is revolving about objects which for the time are stationary. The attack of giddiness, disturbance of vision and confusion of thoughts all appear more or less suddenly. The patient may fall unless he grasps something. Nausea, vomiting, cardiac palpitation and tinnitus aurium are frequently associated. There is no loss of consciousness.

Ocular vertigo is usually dependent upon reading, writing or sewing. The ordinary symptoms of ver-

tigo are usually preceded by headache, nausea and pain in the eyeballs.

In Ménière's disease the vertigo is associated with tinnitus aurium and deafness. The symptoms are of long duration and the patient becomes morose, irritable and suspicious. The symptoms of Ménière's disease may not be permanent.

Gastric vertigo is the most common variety. Patients are subject to stomach and intestinal disorders, as pain after meals, nausea, pyrosis, constipation and distention of the abdomen with flatus.

Nervous vertigo is associated with anemia and may be produced by assuming the erect position. There is a sensation of swimming in the head, darkness comes over the eyes.

Diagnosis.—The diagnosis of the various forms can only be determined by a careful study of the history of the attack.

Prognosis.—This is favorable in the ocular and gastric forms. It is good in nervous vertigo unless it is dependent upon an organic disease. The prognosis is not good in the true Ménière's disease or in senile vertigo.

Treatment.—This must be suited to the various forms when they have been carefully analyzed. The ocular form requires rest for the eyes, which should be examined carefully for ocular defects. Ménière's disease must have rest. The gastric form requires a carefully regulated diet. A milk diet is beneficial and such as will control flatulence. Such articles as shell-fish and strawberries should be avoided.

Conditions and articles of diet which favor auto-intoxication, as fats and sugars, should not be allowed. Alkaline and laxative waters are of service at times.

Ferrum met.—The vertigo is aggravated by descending a height in anemic subjects who are naturally pale, but whose faces become flushed upon the slightest exertion, either mental or physical.

Phosphoric acid.—The patient shows indication of premature senility. He has vertigo with great disposition to sweat during the day; night sweats with vertigo; vertigo from onanism, loss of animal fluids or mental exertion, anxiety or over-work; nervous vertigo, especially when caused by cerebral or nervous exhaustion.

Pulsatilla.—Patient acts intoxicated when arising from a seat, and has pains of almost every variety, often one-sided, accompanied by more or less vertigo, nausea, bad taste in the mouth, without thirst; worse in bad weather; better from pressure, also in the open air; she has gastric menstrual or rheumatic headaches, especially when due to menstrual irregularities. Patient is dizzy from mental exertion, fat food, abuse of coffee or alcohol, or exposure to damp, cold weather.

Ignatia.—There are nervous symptoms and sighing; vertigo followed by nausea and vomiting of slimy, sour fluid or burning in the stomach; abdominal distension, with flatulency and constipation; restless, changeable disposition; vertigo caused by mental emotion; gastric, nervous or epileptic vertigo; worse from stooping or moving the head.

Zincum should be studied when the patient is restless and uneasy.

Silicea.—There is undue perspiration about the head and the general symptoms call for the remedy.

Bryonia alba.—The subject has giddiness and a sensation of looseness of the brain, with gastric vertigo; nausea and disposition to faint. He has weakness and distension of the stomach, flatulence and constipation; burning in the stomach, with vomiting. Symptoms are aggravated by rising from a recumbent position and by motion, but are ameliorated by rest and lying down.

Ipecacuanha.—There is a sensation of vertigo with loss of appetite, empty retching and qualmishness; gastric vertigo, with nausea and vomiting; abdominal distension with flatulency, colic and diarrhœa.

Carbo vegetabilis.—There is extensive formation of flatus with belching, acidity and heart-burn; the patient desires to be fanned.

Sepia.—There is stasis of the hepatic circulation and vertigo with flatulency and constipation. Symptoms are worse when drinking, while looking upward, or while looking from a great height, at a large assemblage of people or an extended plain; gastric or nervous vertigo, especially when caused by a dyspeptic condition; condition is worse when drinking.

Sulphur.—This is useful for those inactive subjects who suffer from chronic vertigo, especially if preceded by a suppressed eruption; gastric vertigo, especially in the morning after breakfast, with nausea; dimness of vision, with inclination to fall to the left.

Natrum mur.—They are weak, anemic subjects who suffer from vertigo, with nausea and heart-burn after eating; gastric vertigo, with reeling and dimness of sight; sensation of everything turning in a circle when walking; nausea and sudden sinking of strength; burning and feeling of pressure in the stomach; want of appetite and aversion to food.

Phosphorus.—Vertigo from the abuse of coffee and *mercuries*, and suffering from vertigo accompanied by reeling, nausea, vomiting; vertigo occurring in the morning, with an empty stomach, after eating or sleeping; during or after the menses, or with fainting and trembling; ocular, gastric or nervous vertigo, especially when caused by nervous debility, sexual abuse, spermatorrhœa or hemorrhoids; worse after eating.

Nux vomica.—There is vertigo with tendency to faint, worse during and after meals; vertigo associated with dyspepsia and constipation; vertigo brought on by mental exertion, sedentary habits, high living or hemorrhoids; vertigo in nervous and hysterical subjects; ocular, nervous or gastric vertigo, or when caused by paresis of the ocular muscles from the use of stimulants or tobacco; worse after dinner.

China.—There has been an extensive loss of vital fluid and there is vertigo from weakness or from general debility; vertigo from anemia, with pale face, ringing in the ears, nausea, vomiting or fainting; vertigo with an empty stomach; gastric, nervous or auditory vertigo, especially when caused by debility from loss of animal fluids.

Chininum sulph.—The patient is exhausted and there is constant tinnitus aurium and vertigo occurring periodically, with chills and fever, especially when due to malaria; vertigo, with headache, cerebral congestion and deafness; auditory vertigo, with hammering and humming in the ears with partial deafness.

Arsenicum.—The patient is weak and exhausted, and there is vertigo, with inclination to fall, especially when closing the eyes. He has nausea and a disposition to vomit in a recumbent position, less when sitting up; burning in the stomach, with vomiting; vertigo coming on periodically, with coldness, followed by fever, loss of appetite and vomiting; gastric, nervous or epileptic vertigo, with reeling, as if intoxicated.

Iodine or one of its combinations should be studied in senile vertigo.

CHORÉA.

Synonym.—St. Vitus' Dance.

Definition.—This is a functional disturbance of the nervous system characterized by an irregular spasmodic movement of groups of muscles with muscular weakness that approaches paralysis.

Etiology.—Rheumatism appears to be the cause in many cases; fright, masturbation, hereditary and reflex hysteria are the causes in certain cases. Girls from five to fifteen years of age are more frequently affected than boys. It is most common during the winter and spring months.

Pathology.—There is no definite pathology.

Symptoms.—The onset is gradual, there is jerking of the arm or hand, with grimaces as if imitating. This is followed by irregular jactitations of the muscles of the face, eyelids, shoulder and arms; this speedily extends to the lower extremities and interferes with locomotion, and in some cases with self-feeding and the holding of anything in the hand. The speech is often unintelligible, and the tongue is constantly moving in an irregular manner. The muscles are usually quiet during sleep, though this is not always the case. The heart action is tumultuous and irregular; there soon develops a soft-blowing systolic murmur, which is distinct at the base of the heart. The memory is often impaired, and the temper easily disturbed. This is a grave form which is acute in its onset and may terminate in coma and death.

Diagnosis.—This is based on the clinical symptoms. It should be distinguished from epilepsy, paralysis agitans and post-hemiplegic chorea.

Prognosis.—Cases usually recover in from one to four months, but relapses are frequent. The chorea of pregnancy is usually fatal to the mother.

Treatment.—These cases require complete rest, both mental and physical. If the patient is a child school work should be stopped, and so should everything that puts any task upon the system. In many cases the patient should be placed in bed with cheerful and bright attendants, and constantly encouraged. She should be urged to sleep as much as possible, and to take warm baths, sponge baths and a glass of warm milk upon retiring. The diet should be nutritious.

Agaricin 2x should be studied when the symptoms are crossed over the body. There is marked *fluctitation* or twitching of the eyelids, spasmodic movements from simple involuntary motions and jerks of single muscles to a dancing of the whole body, trembling of the limbs, soreness of the spine and redness of the eyes. Involuntary movements cease during sleep, symptoms are worse during a thunderstorm.

Mygale.—The muscles of the face jerk and twitch; the eyelids and mouth open and close in rapid succession; in trying to put the hand to the mouth it is arrested. The legs are in motion while sitting and are dragged when attempting to walk.

Cimicifuga.—The subjects are nervous, hysterical, with minds greatly depressed. There is great nerv-

ousness, muscular twitchings resembling chorea, the left side being most affected, with tenderness over the ovarian region. This is especially suited to cases occurring in young girls at or about the age of puberty, or when there are present symptoms indicative of menstrual disorders.

Tarantula.—There is extreme restlessness with general or else crossed choreic movements, as, for instance, the right arm and left leg; the head is drawn downward. There is involuntary discharge of urine, grimaces of the mouth and constant motion. She can run better than she can walk. Movements continue even at night, but subside under the influence of music.

Hyoscyamus.—The twitchings, which are mostly local, are confined to certain parts, as the face, the eyelids, the arm, etc., are especially violent and jerky; the patient is disposed to laugh and be talkative. She is extremely silly and agitated, and worse after eating, which is performed hastily.

Stramonium.—The symptoms are crossed, irregular movements of the voluntary muscles, as, for example, the right arm and left leg; the head and neck are in constant motion. The patient leaps about, making the most grotesque gestures, weeps, laughs, sings, prays, stammers and does many silly and unusual things; handles the genital organs, is violently agitated by unfounded fears, is not disposed to talk or unable to do so. The involuntary movements are greatest when awake, but may continue when asleep.

Zincum should be remembered for those who suffer

from nervous and cerebral exhaustion. There is chronic chorea, embracing all the voluntary muscles of the face, trunk and limbs, so that the patient is unable to eat, walk or lie. He had probably all kinds of treatment, embracing chalybeates and other tonics; his general health is greatly impaired.

Ignatia.—Patient has nervous temperament, is sensitive and easily excited. It is useful in cases which have resulted from depressing emotions, such as grief, fright, etc., and attended by sighing, sobbing or a disposition to be alone. It is most useful when the left side is affected; symptoms worse after eating and better when lying on the back.

Cuprum should be considered in neuralgic, chlorotic subjects whose legs and arms are in perpetual motion, with constant motion of the muscles of the face and delicate constitution, with pallid face and tongue. Irregular movements commence in one limb and spread to other parts, sometimes involving the whole body, at others limited to only one side of it, with great mental exaltation. The condition is better when lying down or when asleep, but never ceases altogether.

Cocculus is useful in those who suffer from seasickness and from riding backwards in a carriage. The movements are confined chiefly to the right side of the body, as the right arm or the right leg, with a tendency to paralysis of the affected parts. The menses are dark, scanty and irregular, and she is subject to venous or hemorrhoidal congestions.

Pulsatilla should be studied in those with mild, yield-

ing dispositions, with symptoms due to disease of the genital organs, such as amenorrhœa, dysmenorrhœa, ovaralgia, etc., and in choreic movements occurring in young girls at or near puberty.

Nux vomica should be remembered in the case of thin, irritable, bilious subjects, with numbness of the affected parts; also formication, impaired appetite, constipation, vague flying pains about the chest and legs, movements renewed by the least touch, but diminished by strong and steady pressure. The symptoms are worse early in the morning. It is useful in chronic cases, especially such as have been under old school treatment.

Sulphur should be considered in those subject to venous congestions, especially of the portal system, well selected remedies not giving the desired effects, and for chronic cases following suppressed eruptions. In one case the patient was disposed to admire common objects, raving over them; she was pale and poorly nourished; the condition had existed six months. The patient is apt to be irritable, peevish and obstinate.

Cina should be thought of when intestinal parasites are suspected and there is violent twitching of the muscles with scintillation of the eyes, which flash like those of a snake. The choreic movements commence with a shriek. The tongue, larynx and œsophagus are affected, causing a chucking sound, like that of water poured from a bottle; also when the trouble is caused by worms or onanism.

HEREDITARY CHOREA.

This disease appears late in life and often continues till death. It is attended with inco-ordinate movements of the hands and feet. There is evidence of mental impairment, and degenerative changes in the cerebral centers, are found following death.

The treatment is not satisfactory and consists of meeting the conditions as they arise.

NARCOLEPSY.

Narcolepsy is a condition in which the patient falls asleep several times during the day. It may be a manifestation of hysteria, uremia, syphilis, diabetes or obesity.

The cause must be sought out by a most thorough and careful examination of the patient, and this removed.

RAYNAUD'S DISEASE.

Etiology.—This is more common in females than in males and in neurotic subjects. Rheumatism, syphilis, trauma, infectious fevers, mental emotions, fatigue and fright are the more important causes.

It appears under three degrees. Local syncope, in which the whole hand presents a white, glossy appearance and is cold to the touch. This may last from a few minutes to a day or more, and then pass away or become congested and red. Local asphyxia with mild pain. This form may clear up or terminate after a number of recurrences in a local gangrene, where the fingers and toes are affected. Blebs are seen and a line of demarkation between the healthy and necrotic tissue results. In some cases the tip of the nose or various small parts over the body may become involved. Mental torpor, peripheral neuritis and unconsciousness may develop.

Diagnosis.—Care should be exercised to distinguish this from other forms of gangrene, as senile gangrene, frost bites and gangrene due to poisoning.

Treatment.—Every effort should be introduced to improve general health and circulation. If the parts are cold, heat should be applied during the attack, as wrapping in absorbent cotton. Elevation of the parts is of service in some cases.

Attention must be devoted to the relief of pain. The coal-tar products and morphine should be avoided,

as they both tend to favor the condition. Morphia, especially, if it is injected into the involved parts, a 50 per cent. menthol solution, in alcohol, applied to the parts and then covered with absorbent cotton and oiled silk, is of service.

CATALEPSY AND TRANCE.

Catalepsy and trance are but manifestations of hysteria. During the paroxysm the limbs are rigid and remain in the position in which they are placed.

The treatment is very similar to that of hysteria. *Cannabis Indica*, *artemisia vulgaris* and *aranae diadema* are the remedies that have had some service in the control of this condition.

ANGIONEUROTIC EDEMA.

Etiology.—Hysteria, neurasthenia, abuse of alcohol, tobacco, exposure to cold and syphilis are common causes.

Symptoms.—The onset is sudden, there is itching, swelling of the extremities, the face, mucous membranes and various other parts. The edema lasts from a few minutes to several hours.

Treatment.—The general condition of the patient must be improved by means of diet, change of climate, hydrotherapy and such remedies as may be indicated.

Apis.—The stinging and edema are marked.

Antipyrine 3x, *urtica urens*, and *agaricus* should be studied.

Adrenalin should be studied in cases of edema of the glottis. Here it should be applied by means of a spray.

SOMNAMBULISM.

Somnambulism is a condition in which the patient during his dream arises and moves about. Of this he has no knowledge when awake.

It is most frequent in those of neurotic habits.

The treatment should be directed to restore a normal tone to the nervous system. The remedies that have appeared to have some influence in this condition are *Kali bromatum*, *aurum bromatum*, *zincum phos.* and *sulphur*.

OCCUPATION NEUROSIS.

Synonyms.—Occupation Spasms; Fatigue Neurosis.

Definition.—This is a neurosis, the result of the constant use of a certain group of muscles.

Etiology.—It is most frequent in males and especially in writers (writers' cramps). Neurotic temperament, trauma, sexual excesses, abuse of alcohol and tobacco favor its development.

Symptoms.—Writers' cramp, which is the most common, appears gradually. The fingers become locked, there is pain in the hand and the pen is thrown from the hand; while in other cases the hand becomes weakened and the fingers and hand become numb. A muscular debility of the whole arm results. Other occupations may give rise to a group of symptoms similar to that of writers' cramp.

Prognosis.—This is favorable if the particular occupation is discontinued. There is a tendency to a return of the symptoms if the occupation is renewed.

Treatment —Rest is of the most importance. In some cases use of a ball pen-holder or learning to write with the left hand is required. Changing the position of the fingers when writing is beneficial.

Massage and hydrotherapy are of service in some cases. The massage should be deep. Electricity is not of much benefit.

Gelsemium will gradually relieve recent cases if the muscles involved are given the time to regain their lost tone. *Picric acid* should be studied in worn-out neurotic subjects. *Arnica*, *zincum*, *selenium* and *argentum* should be studied.

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